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SENSITIZATIONS

REGIONAL, SEASONAL, DIETARY AND OTHER INFLUENCES ACCOUNTING FOR VARIATIONS AND FLUCTUATIONS *

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In medicine the frequent inability of conscientious workers to verify one another's results often causes confusion and disputes. There are many explanations that can be advanced as possible causes of these discrepancies, and it seems necessary to attempt to fix and prove some of them. It is obvious that one of the most important criteria to be observed in repeating and checking up is that of exactly reproducing all the conditions of the original experiments or observations. While every conscientious worker does this to the utmost of his ability, too many fail to realize that in spite of this, no two biologic experiments can be identical. Through a chance observation we have come to the conclusion that one factor in particular, which has frequently been assumed to be a constant, or at least without particular influence, may actually be a variable of considerable importance in its effect. This factor is the geographic localization of the experiments performed, including all the variations that are directly or indirectly dependent on the site of the experimentation, such as differences in the race, feeding, housing, etc., of the test subjects or experimental animals employed.

In this communication we shall report the observations that called our attention to this particular type of possible experimental error. With the permission of Geheimrat J. Jadassohn of the University of Breslau, Prof. B. Bloch of the University of Zürich, Switzerland, and the director of a large experimental institute in New York, we were able to carry out experiments on guinea-pigs in the three different institutes in the cities mentioned.

The first experiments were performed in Breslau during an exceptionally severe winter, and the results were published by Sulzberger in detail in two prior communications.[1] We shall here give only a short

* Submitted for publication, March 9, 1931.

* From the Dermatological Clinic, University of Breslau, Germany.

1. Sulzberger, Marion B.: Hypersensitiveness to Arsphenamine in Guinea-Pigs, Arch. Dermat. & Syph. **20**:669 (Nov.) 1929; Arsphenamine Hypersensitiveness in Guinea-Pigs, ibid. **22**:839 (Nov.) 1930.

résumé, referring the reader to the earlier publications for description of technic, method of determining hypersensitivity, etc. In Breslau, guinea-pigs were sensitized through intradermal injections of a brand of German neoarsphenamine (neosalvarsan Hoechst). In these experiments eighty-nine of ninety animals (98+ per cent) became skin sensitive to neoarsphenamine.

In March of the same year, Sulzberger, being at Zŭrich and wishing to carry on further experiments in sensitization of guinea-pigs to neoarsphenamine, gave Zürich animals intradermal injections of a brand of Swiss neoarsphenamine. There was no other conscious variation of the Breslau technic. Of these twenty-four animals only thirteen, or 54+ per cent, became hypersensitive to neoarsphenamine. With the thought that this variation might be due to the different brand of drug employed, a second series of twelve guinea-pigs was sensitized. This time the German brand that had been injected in Breslau was used. However, just as in the first series of experiments at Zürich, only six of twelve, or 50 per cent, of the guinea-pigs became hypersensitive.

On returning to America, the investigator was informed by a friend of his who is director of a research institute in New York that he had attempted to sensitize guinea-pigs to neoarsphenamine to carry on further experiments in this sensitization. Although he followed exactly the same technic that had been employed in Breslau and Zürich, not a single animal became hypersensitive.

A repetition of these experiments were undertaken by Sulzberger. Though the neoarsphenamine used was not only of the same brand but even of the same factory lot as that which had successfully sensitized 98 per cent of the guinea-pigs in Breslau, the experiment led to the same result as that previously obtained in the case of American animals. Not one of the forty-five animals given the injections became hypersensitive. In a footnote to a previous article,[2] variations in results were alluded to.

Not only have these seeming discrepancies been observed by us, but the results mentioned have already been confirmed in the publications of others. Frei,[3] who first sensitized guinea-pigs to neoarsphenamine in Breslau, achieved practically the same results as we did in that locality. Furthermore, the experiments of Sulzberger in Breslau have been confirmed in Odessa as regards both sensitization and prevention of sensitization, including the observation of arsphenamine dermatitis in sensitized animals (Kaplun and Moreinis[4]).

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2. Sulzberger (footnote 1, second reference).

3. Frei, W.: Untersuchungen mit Neosalvarsan am Tier, Klin. Wchnschr. **22**:1026, 1929.

4. Kaplun, B. J., and Moreinis, J. N.: Versuch der experimentellen Sensibilisierung gegen Salvarsan, Acta dermat.-venereol. **11**:295 (Sept.) 1930.

The outcome of our experiments in Zürich has been confirmed by subsequent series of animals sensitized by Mu Wu in the Zürich Institute,[5] and our observations in America have the substantiation of previous independent experiments by other workers.

Through the sum of these observations it seems sufficiently established that the place in which an experiment is performed (and all the variations due to change of place, fodder, race, etc.) may have a decided influence on the results obtained. It is evident that a study of the exact conditions that influence these variations may lead to discoveries of great practical importance in the prophylaxis or combating of disease.

The clinical fact that the inhabitants of different geographic sites have different dispositions to disease is as old as medicine. The "genus epidemicus" and "genus endemicus" have been alluded to as far back as one can search, and the strict geographic localizations of certain diseases are astonishing and have no adequate explanation today.[6]

In addition to their possible relationship to these variations in infectious conditions, the experiments here reported—since they deal with changes in reaction to a known chemical—clearly demonstrate that the effects of the administration of a drug may be subject to influences of which one is almost totally ignorant today. Certain seeming discrepancies in clinical and experimental sensitizations with drugs can probably best be explained by the fact that although seemingly identical, conditions in different localities are never actually so. To select only one example from the many possible ones, we wish to mention the sensitizations to nickel and their variations as observed by Schittenhelm and Stockinger, Walthard, Werner Jadassohn and Schaaf [7] and Coca and Milford.[8] In many ways these seem to be analogous to our observations.

It would take us much too far afield to mention even a small percentage of the number of varying observations that may be brought into relationship with our findings; we believe that the importance of the question here touched on is self-evident, and that this report demonstrates the existence of powerful influences modifying or determining what has been hitherto known as the "constitutional factor." There can be no doubt that in the experimental sensitizations with definite chemicals, such as arsphenamine (Sulzberger and Frei [9]), paraphenylen-

5. Wu, Mu: Personal communication to the authors, to be published.

6. Jadassohn: Handbuch der Haut und Geschlechtskrankheiten, Berlin, Julius Springer, 1930, vol. 14, p. 2.

7. Jadassohn, Werner; and Schaaf, Fritz: Ueber die Häufigkeit des Vorkommens von Nickelekzemen, Arch. f. Dermat. u. Syph. **157**:572, 1929.

8. Coca and Milford, quoted by Jadassohn and Schaaf (reference 7).

9. Sulzberger (footnote 1). Frei (footnote 2).

diamine (Mayer [10]), phenylhydrasine, etc., there lies a scientific approach to the study and perhaps the discovery of some of these important influences.

Mayer and Sulzberger [10] have shown that one of these important influences is the diet of the animals. In Breslau we were able to demonstrate in experiments performed on over 300 guinea-pigs that there were striking differences in the susceptibility to sensitization between animals fed green (summer) fodder and those fed dry (winter) fodder. The green fodder (alkaline ash) inhibits sensitization and the dry fodder favors it. This was demonstrated conclusively in sensitizations both with arsphenamine and with paraphenylendiamine, both hypersensitiveness of an eczematous type and the latter comparable in many ways to eczema in human beings. This result appears to be the confirmation of many observations in clinical pathology and in therapy concerning the seasonal fluctuations of diseases and the effect of diets (salt-free diets, low-protein diets, alkalinization, acidifying, etc.). It seems to us the first experimental proof of the so-called "spring or summer peak" in the occurrence of allergic conditions. For the further discussion of this phase of the question we refer to the report already mentioned.[10] Here, however, we wish to point out that experiments now in progress have so far shown that the differences in fodder are probably not as much a question of vitamins as of acid-base balance (as we intimated in our report in Copenhagen). The relationship of the acid-base balance to the emotions (Stokes and Pillsbury [11]), the sympathetic and parasympathetic nervous systems (Brack [12]), the endocrine functions and the postassium-calcium ratio brings our experiments into analogy with the recent work in these directions. It is also interesting to note that many therapeutists advise and employ alkalinization or acidifying in the combating of allergic conditions (for instance, acid is used by Beckman [13]). The discussion as to the exact effect of the different methods on the reaction of the actual tissues is not yet closed, and the problem of the ultimate chemical effect of such diets as those of Gerson, Hermannsdorfer and Sauerbruch requires further study.

As resistance to infections and variations of susceptibility to bacterial invaders may be considered as dependent on the same general laws as

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10. Mayer, R. L., and Sulzberger, Marion B.: Influence of Diet on Sensitization, read at International Dermatological Congress, Copenhagen, 1930; Arch. f. Dermat. u. Syph. **163**:245, 1931.

11. Stokes, J. H., and Pillsbury, D. M.: The Effect on the Skin of Emotional and Nervous States, Arch. Dermat. & Syph. **22**:962 (Dec.) 1930.

12. Brack, W.: Ueber das Wesen und die Bedeutung der alimentären Hamoklasie, Ztschr. f. d. ges. exper. Med. **51**:525, 1926.

13. Beckman, H.: Allergy and Acid-Base Balance, J. A. M. A. **95**:1582 (Nov. 22) 1930.

those governing sensitizations and immunities to nonliving substances, it would not be surprising to find variations in infectious diseases dependent on diet. To quote only one of the most recent observations, we may mention the experiments in syphilitic infections of rabbits, recently reported by Greenbaum.[14] This investigator noted that the feeding of rabbits influenced the percentage of "takes." Repetition and enlargement of Greenbaum's interesting experiments may prove that the resistance of the underfed rabbits can be attributed to the higher proportion of green fodder that they received.

While it is natural that diet alone cannot be made responsible for all the variations in sensitizations that have been and are being observed,[15] we were astonished at its decided effect in our experiments at Breslau. The further investigation of factors influencing susceptibility, and also the exact determination of the constituents of food, blood and tissues that play the important rôles in the influence observed, must remain the object of future investigations. Perhaps careful study along this path will help reconcile the school that contends that the contact with outside substances is the all-important factor in sensitization, with that which sees the constitutional and casual state of receptivity in the foreground of the problem.

SUMMARY AND CONCLUSIONS

Chance observations showed that guinea-pigs reacted differently when sensitizations with the same brand of neoarsphenamine were attempted in Breslau, Zürich and New York. In Breslau 98 per cent of the animals became sensitized, and in New York none; the Zürich animals showed a state of susceptibility placing them between those of New York and those of Breslau in this respect. These differences remained constant in spite of experiments carried out with care to provide for identical technic.

This result may throw some light on hitherto apparently contradictory experimental results reported by different observers, as well as on observations of clinical, epidemiological, endemiological, geographic and seasonal fluctuations.

Furthermore, certain therapeutic effects and variations may be better understood through the consideration of these experimental observations.

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14. Greenbaum, S. D.: Rabbit Health Factor in Experimental Syphilis, Am. J. Syph. **14**:231 (April) 1930.

15. Constitutional factors, the race of the animals, etc., are certainly also of consequence. In speaking of experimental animals, it must be remembered that one is usually dealing with a very mixed race, which not only may vary from individual to individual, but may also present different types and families in different places and countries.

A study of the modifying factors possibly at play was carried out by us in Breslau. This showed that the diet of the experimental animals is of decided importance, green fodder (alkaline ash) inhibiting and dry fodder favoring sensitization. (Two substances, neoarsphenamine and paraphenylendiamine, were employed in the experiments at Breslau).

This does not mean that still other influences are not at play; for instance, the nonhomogeneous races of the experimental animals must be considered.

The knowledge and consideration of these facts may aid in the elimination of many wasteful polemics and discussions. Their practical application and further investigation may lead to results that will permit the modification of the predisposing factors in human sensitization and immunity, thus being of value in prophylaxis and therapy.

THE ALLERGIC SKIN REACTION*

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The term "allergy" as used in these remarks refers particularly to the group of cases embracing asthma, hay-fever and urticaria. The principal lesion of this type of allergy is a localized edema. Thus, hay-fever and allergic rhinitis cause symptoms because of an edema localized in the nose and conjunctivae; in bronchial asthma, an edema of the bronchial mucous membrane occurs, and in food allergy, edema of the gastric mucosa has been proved. This lesion is exemplified by allergic urticaria wherein each wheal represents a local edema and is typical of the allergic edema found elsewhere. Spasm of smooth muscle likewise occurs as an allergic manifestation, particularly in bronchial asthma and in food allergy, but this will not be considered in the present discussion.

In considering the mechanism of allergic edema, it is apparent that it is caused when the allergen to which a patient is sensitive comes in contact with its specific antibody, which resides in the tissues. This is demonstrated by a positive reaction to an allergic skin test. When ragweed pollen extract, for instance, is injected into the skin of a person who is sensitive to this pollen, a sudden edema at the site of injection results. There is considerable evidence that when such an allergen comes in contact with its antibody, histamine or a histamine-like substance is formed, and it is this that causes the edema.

There is a good deal of discussion at this time as to whether the elaborated substance is actually histamine or something else that acts like histamine. This is not important when applied to these experiments, which are based on the fact that histamine when injected intradermally gives a localized edema identical with that of allergy. With both, the time of appearance of the wheal and the surrounding flare, the duration, the morphologic architecture and the variation in size at different sites on the skin are essentially identical. This holds true, not only for human skin, but for dog's skin in which wheals induced by injections of histamine have been shown to have the same characteristics as those in human skin.

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* From the Department of Medicine, Washington University, and the Barnard Free Skin and Cancer Hospital.

* Read at the Fourth Annual Meeting of the Dermatological Conference of the Mississippi Valley, St. Louis, Dec. 6, 1930.

With the establishment of the identity between the localized edema of allergy and the edema produced when histamine is injected into a dog's skin, a method becomes available for the study of the mechanism of such lesions. Histamine in any desired dilution may be injected into dogs at will, and factors that increase or decrease the edema may be observed.

A year ago I reported that normal skin contains a substance which, when added to a given concentration of histamine, makes the resulting wheal larger in comparison with the wheal induced by the same concentration of histamine without added skin extract. This substance in skin may be demonstrated by the simple process of chopping dog's skin into small pieces and extracting them for two hours in nine parts of physiologic saline solution at the temperature of the room. After filtering, the extract is added to a histamine acid phosphate solution, in such proportion that the final dilution of the histamine salt is 1:10,000. Three intradermal injections of 0.02 cc. are then made with the following substances: (1) skin extract, (2) histamine salt 1:10,000 and (3) histamine salt 1:10,000 containing skin extract. The bleb raised by each injection is ringed with ink, and after fifteen minutes the periphery of the resulting wheal is likewise outlined. Planimeter measurements of the area within each ring are made and expressed in square centimeters. The difference between the outer and the inner ring equals the increase in size of the wheal. These measurements are made from tracing paper on which the rings have been marked. The results from the three injections in a typical experiment were as follows: (1) no wheal, (2) a wheal of 0.3 sq. cm. and (3) one of 0.8 sq. cm. This experiment was repeated hundreds of times with fairly constant results. It is thus seen that skin extract alone does not contain a wheal-forming substance, but does contain something that enhances the action of histamine.

At the time these experiments were reported, the enhancing substance had not been identified. During the past year this has been isolated and found to be calcium. Of particular interest, however, is the fact that calcium enhances histamine only when the calcium is in very dilute solution, as low as ten parts per million. When concentrated solutions of calcium are used, they have no enhancing effect on the action of histamine. As a matter of fact, concentrated solutions of calcium seem actually to reduce the size of wheals induced by histamine.

These experiments are now being applied clinically. Various known methods of concentrating calcium in the tissues are applied to patients with various forms of allergy, and the effect on allergic edema is noted. Although interesting results are being observed, I am not prepared as yet to report on them. It might be said that calcium therapy

in allergy has been tried for a long time with discouraging results. On the other hand, there is an evident difference between bound calcium and free calcium ions, with which I believe these experiments are concerned. Hence I am attempting to secure a high concentration of calcium ions, which will not result merely in giving calcium salts, unless supplementary measures are taken. Unfortunately, there is no suitable method for the determination of the concentration of calcium ions, so that as yet my contention is one of inference rather than of proof.

BACTERIAL PROTEIN FEVER IN THE TREATMENT OF SYPHILIS IN THE RABBIT*

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That artificial heat possesses curative activity in syphilis in rabbits has been shown by the investigations of Schamberg and Rule.[1] Hot baths, for eleven consecutive days, under certain conditions, with an average rise in temperature of about 4 F., usually protected the animals from syphilis after intratesticular inoculation with virulent *Spirochaeta pallida*; hot baths were subsequently found to reduce the strength of the Kolmer-Wassermann reaction in human beings,[2] with a regression of secondary and tertiary lesions.

Since the advent of malarial therapy in the treatment for syphilis, other agents have been tried for the production of fever, among which may be mentioned sodium nucleinate, tuberculin, typhoid vaccine and Coley's fluid, the literature having been briefly summarized by Kemp and Stokes,[3] who also reported on the extensive use of typhoid-paratyphoid vaccine by intravenous injection in the treatment for acute and chronic syphilis in human beings. Their average response in temperature was a rise of from 103.6 F. to 104.2 F., with a mortality of 1.5 per cent. Fever therapy with these bacterial proteins caused the involution of primary and secondary manifestations, but as a method of treatment it was markedly inferior to treatment with arsphenamine. However, this form of fever therapy combined with injections of arsphenamine and followed by injections of arsphenamine and bismuth offered a more satisfactory outlook in a small group of cases than did routine treatment with arsphenamine and bismuth alone. The first dose of typhoid-paratyphoid vaccine was approximately 200,000,000, given by intravenous injection. The injections were given on alternate days, and later, on two successive days; in view of acquired tolerance, the

* Submitted for publication, March 7, 1931.

* From the Research Institute of Cutaneous Medicine of Philadelphia.

1. Schamberg, J. F., and Rule, A. M.: Studies of the Therapeutic Effect of Fever in Experimental Rabbit Syphilis, Arch. Dermat. & Syph. **14**:243 (Sept.) 1926; The Therapeutic Effect of Hot Baths in Experimental Primary Syphilis in Rabbits, J. A. M. A. **88**:1217 (April 16) 1927.

2. Schamberg, J. F., and Rule, A. M.: The Effect of Extremely Hot Baths in Experimental Syphilis, Arch. Dermat. & Syph. **17**:322 (March) 1928.

3. Kemp, J. E., and Stokes, J. H.: Fever Induced by Bacterial Proteins in the Treatment of Syphilis, J. A. M. A. **92**:1737 (May 25) 1929.

doses were gradually increased, so that by the twelfth dose as large a dose as 4,000,000,000 was given at one time.

TYPES OF TREATMENT

Intravenous Injections of Typhoid-Paratyphoid Vaccine.—In our experiments, rabbits were given intratesticular injections of the Nichols-Hough strain of *Spirochaeta pallida*. Treatment was begun about three or four weeks later, when large syphilomas containing numerous actively motile spirochetes had developed in both testicles.

The first intravenous injection of typhoid-paratyphoid vaccine was 1,000,000 per kilogram, corresponding to 70,000,000 for an adult of average weight.

The rectal temperature of rabbits with acute testicular syphilis varied from 101 to 102 F. The dose of vaccine elevated the temperature by from 2 to 4 or 5 F. in from one to four hours following the injection, with a return to the preinjection level in twenty-four hours (chart 1).

The injections were given every three days for a total of ten doses, and the doses were increased as follows: first dose, 1,000,000 per kliogram; second dose, 1,000,000; third dose, 2,000,000; fourth dose, 4,000,000; fifth dose, 6,000,000; sixth dose, 8,000,000; seventh dose, 16,000,000; eighth dose, 24,000,000; ninth dose, 48,000,000; tenth dose, 100,000,000.

It will be noted, therefore, that while the first and second doses averaged 70,000,000 per seventy kilograms, the last reached as high as 7,000,000,000 per seventy kilograms. This increased dosage was required for producing elevations in temperature ranging from 2 to 5 F. and lasting for from four to six hours, because rabbits have likewise shown an acquired tolerance for this bacterial protein.

In a series of rabbits treated in this manner, the first four or five injections did not show an appreciable regression of the testicular lesions or a reduction in the number and motility of the spirochetes beyond that shown by the untreated animals used as controls (chart 1).

Following the completion of ten injections over a period of approximately thirty days, all of the animals still showed the presence of small chancres with actively motile spirochetes; therefore, it was concluded that the ten fever reactions, or elevation of the temperature from 2 to 4 or 5 F., lasting about five hours each, had no appreciable curative effects.

Intravenous Injections of Typhoid-Paratyphoid Vaccine and Arsphenamine.—A second series of animals was treated in the same manner, except that for five weeks in addition 0.002 Gm. of arsphenamine per kilogram was injected once a week. Controls treated with arsphenamine

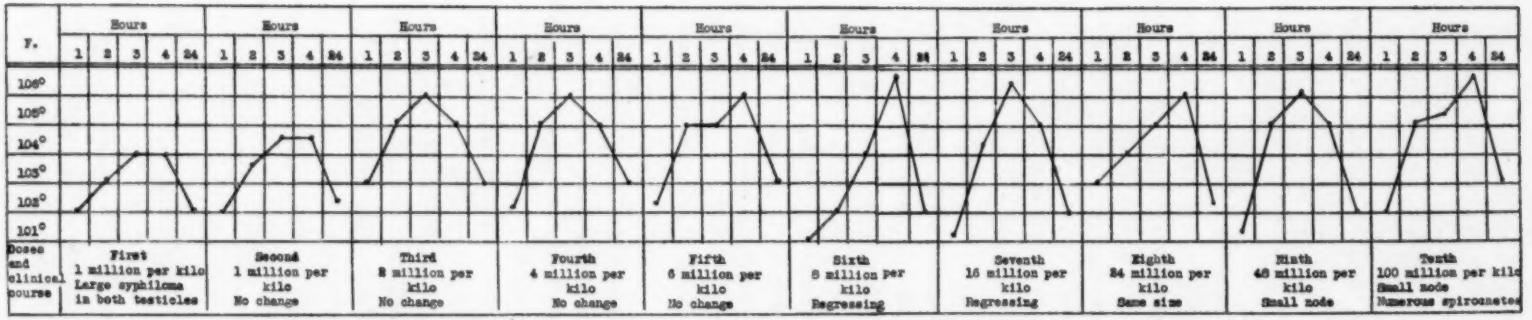

Chart 1.—Typhoid-paratyphoid vaccine in the treatment for acute testicular syphilis in the rabbit.

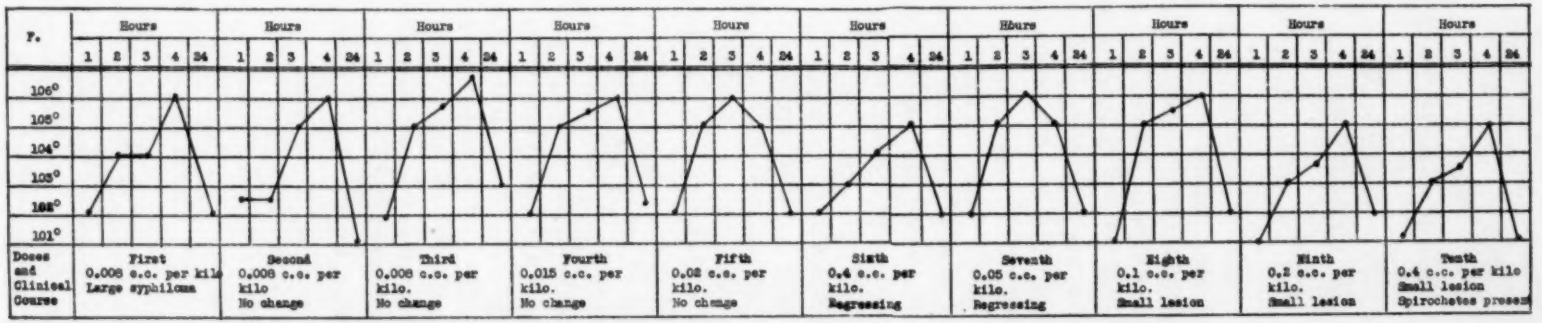

Chart 2.—Coley's fluid in the treatment for acute testicular syphilis in the rabbit.

alone showed a complete disappearance of the testicular lesions following four or five injections; however, transplants of lymph glands to normal rabbits were positive; that is, they produced testicular syphilis in every instance, since the amount selected was less than the minimal curative dose.

There was a disappearance of the testicular lesions in all but one of the animals in this series, in which the rabbits received the vaccine every seventy-two hours and the arsphenamine once a week; however, the transplants of lymph glands to normal rabbits were again positive in each instance, so that it could not be stated that the ten fever reactions enhanced the therapeutic effects of the five doses of arsphenamine.

Intravenous Injections of Typhoid-Paratyphoid Vaccine and Intramuscular Injections of Bismuth.—A third series of rabbits was given injections of typhoid-paratyphoid vaccine every seventy-two hours and weekly intramuscular injections of potassium bismuth tartrate in oil, in doses of 0.001 Gm. per kilogram, corresponding to 0.07 Gm. per seventy kilograms.

Controls receiving this amount of bismuth alone usually showed complete healing of the testicular lesions after the fifth injection, but transplants of lymph glands to normal rabbits were positive in all instances, as this amount of bismuth per kilogram was less than the minimal curative dose.

In the rabbits that received the vaccine every seventy-two hours and the bismuth every seven days there was complete healing of the testicular lesions after five doses of vaccine and three or four doses of bismuth, but transplants of lymph glands to fresh animals after the tenth dose of vaccine and the fifth of bismuth were positive in every instance, indicating the presence of surviving spirochetes.

Intravenous Injections of Coley's Fluid.—The intravenous injection of 0.008 cc. of Coley's fluid per kilogram of weight into rabbits with acute testicular syphilis usually produced a rise of temperature of from 101 or 102 F. to 105 or 107 F., an increase of from 3 to 6 F. (rectal). This dosage corresponds to about 0.5 cc. for an adult weighing 70 Kg., which is three or four times the initial dose for a human being, since it should not exceed 0.1 cc. As a rule, the maximum increase of temperature was reached about four hours after injection, with a gradual return to normal in about twenty-four hours (chart 2).

A gradual, increased tolerance was noted after the first three doses, so that subsequent doses every seventy-two hours were given as follows: first dose, 0.008 cc. per kilogram; second dose, 0.008 cc.; third dose, 0.008 cc.; fourth dose, 0.015 cc.; fifth dose, 0.02 cc.; sixth dose 0.04 cc.; seventh dose, 0.05 cc.; eighth dose, 0.1 cc.; ninth dose, 0.2 cc.; tenth dose, 0.4 cc.

It will be noted, therefore, that while the first dose was 0.008 cc. per kilogram, corresponding to about 0.5 cc. per seventy kilograms, the tenth dose was as much as 0.4 cc., corresponding to the enormous amount of 28 cc. for an adult weighing 70 Kg.

However, not only did the animals survive these large amounts, but after ten doses, the testicles still showed small hard nodes and chancres with numerous spirochetes (chart 2). Under these circumstances lymph gland transfers to fresh animals were not made, as it was apparent that the ten fever reactions of from 3 to 6 F. each had no appreciable curative effects.

Intravenous Injections of Coley's Fluid and Arsphenamine.—A second series of animals with acute testicular lesions was given intravenous injections of Coley's fluid in the same dosage every seventy-two hours, with arsphenamine in doses of 0.002 Gm. per kilogram each week for a total of five injections.

As stated, this amount of arsphenamine alone produced complete regression of the testicular lesions, with a disappearance of spirochetes, but with positive transfers of lymph glands to fresh animals.

The results observed after the use of Coley's fluid and arsphenamine were practically the same. The testicular lesions did not regress any more rapidly, and with the fourth or fifth injection of arsphenamine and the eighth or tenth of Coley's fluid they had just about disappeared, although transfers of lymph glands to fresh animals were positive in every instance, without any demonstrable evidence of enhanced curative activity to be ascribed to the ten fever reactions.

Intravenous Injections of Coley's Fluid and Intramuscular Injections of Bismuth.—A third series of rabbits with acute testicular syphilis was given the same number of intravenous injections of Coley's fluid every seventy-two hours along with weekly intramuscular injections of potassium bismuth tartrate in oil in doses of 0.001 Gm. per kilogram for five injections.

As previously stated, controls receiving this amount of bismuth alone, corresponding to 0.07 Gm. per adult, showed a regression of lesions and a disappearance of spirochetes, but positive transfers of lymph glands to fresh animals.

In the rabbits that received intravenous injections of Coley's fluid every seventy-two hours and bismuth once a week, the testicular lesions usually showed complete regression after the fifth or sixth injection of Coley's fluid and the third of bismuth, which was a somewhat more rapid regression than was observed in the series treated with Coley's fluid and arsphenamine. However, while the testicles showed complete healing with a disappearance of the spirochetes by the end of the series

of ten injections of Coley's fluid and five of bismuth, transfers of lymph glands to fresh animals were positive in every instance.

Malarial Blood.—A small series of three rabbits with acute testicular lesions was given intravenous injections of 1 cc. of citrated blood of neurosyphilitic patients in the Graduate Hospital, which was taken from twenty-four to thirty-six hours after fever, chills and sweats had occurred in the course of malarial therapy given by Dr. Kolmer. From twelve to sixteen injections were given at the rate of one every forty-eight hours. There was no hope of inducing malaria in the rabbits, and as a matter of record the parasites injected into the human blood were never found in examinations of the blood of the rabbits, but the experiment was undertaken to ascertain whether the fever-producing substances of the plasmodia would induce fever in the rabbits. We also expected that the intravenous injection of this amount of human blood into rabbits might alone produce protein fever, with a possible influence on the testicular lesions.

However, none of the rabbits showed a rise in temperature, and in none of them did a demonstrable regression of the lesions take place beyond the natural regression in untreated controls.

Several rabbits were also given injections of malarial blood prior to inoculation of the testicles with *Spirochaeta pallida,* in order to determine whether resistance could be increased for prophylactic effects, but in every instance acute testicular lesions developed in these animals at the same time and with equal severity as in the untreated controls.

COMMENT

Our investigation has shown, therefore, that an increase of from 2 to 4 or 5 F. in temperature (rectal), which lasted several hours and which was induced by intravenous injections of typhoid-paratyphoid vaccine and Coley's fluid, had no pronounced therapeutic effect in the treatment for acute testicular syphilis in rabbits; the first injection of each substance was given about three or four weeks after intratesticular inoculation and the remainder every seventy-two hours for a total of ten injections. While the testicular lesions usually regressed, after the tenth injection of each substance small nodes with motile spirochetes persisted in the testicles.

Nor did five weekly intravenous injections of 0.002 Gm. of arsphenamine and the same number of intramuscular injections of 0.001 Gm. of potassium bismuth tartrate in oil per kilogram of weight, together with ten intravenous injections of the vaccine and Coley's fluid every seventy-two hours, demonstrably increase the therapeutic effects, beyond the change observed in control animals that received the arsphenamine and bismuth alone. At least, complete cures were not observed, since

transplants of lymph glands to fresh animals were positive in every instance.

It may be that the testicular lesions in the rabbits were so heavy and acute as to obscure therapeutic effects, but the influence of the fever reactions induced by the vaccine and Coley's fluid were certainly much less pronounced than the effects of the hot baths employed by Schamberg and Rule. Since the fever produced by these agents was approximately as high as that produced by hot water, and since it lasted even one or more hours longer, we are at a loss to explain the difference in results unless the immersion of rabbits into hot water brought about curative effects by the local application of heat to the testicular lesions instead of by an elevation of body temperature.

Furthermore, Dr. Kolmer gained a favorable impression of the therapeutic value of intravenous injections of typhoid-paratyphoid vaccine in conjunction with the administration of tryparsamide, arsphenamine and bismuth in the treatment of eleven patients with neurosyphilis. So far there has been no mortality, since advanced cases of cardiovascular disease have been carefully excluded from this type of therapy. However, one fatality due to myocardial collapse followed the first injection of 0.2 cc. of Coley's fluid into a man, aged 58, who weighed 164 pounds (74 Kg.); the reactions in seven other cases were more severe generally than those observed after the use of vaccine. It may well be, therefore, that bacterial protein therapy in conjunction with chemotherapy improves the treatment for chronic syphilis in human beings, as was shown by Kemp and Stokes, without enabling one to elicit evidences of therapeutic effects by these protein agents alone or in combination with arsphenamine and bismuth in the treatment for acute testicular syphilis in rabbits.

CONCLUSIONS

1. The intravenous injection of typhoid-paratyphoid vaccine into syphilitic rabbits in doses of from 1,000,000 to 100,000,000 per kilogram of weight produced a rise of rectal temperature of from 2 to 4 or 5 F., lasting several hours and reaching the preinjection level within twenty-four hours.

2. The treatment of rabbits with acute testicular syphilis with ten intravenous injections of increasing amounts of typhoid-paratyphoid vaccine at intervals of seventy-two hours did not result in complete cure in any of the animals.

3. Ten intravenous injections of the vaccine at intervals of seventy-two hours together with five intravenous injections of arsphenamine in doses of 0.002 Gm. per kilogram at weekly intervals, did not result in the complete cure of any of the rabbits with acute testicular syphilis.

4. Ten intravenous injections of the vaccine at intervals of seventy-two hours together with five intramuscular injections of potassium bismuth tartrate in doses of 0.001 Gm. per kilogram at weekly intervals, did not result in the complete cure of any of the rabbits.

5. The intravenous injection of from 0.008 to 0.4 cc. of Coley's fluid per kilogram of weight into syphilitic rabbits produced a rise in temperature of from 3 to 5 or 6 F. (rectal), which lasted several hours and which reached the preinjection level within twenty-four hours.

6. None of the rabbits with acute testicular syphilis that received ten intravenous injections of increasing amounts of Coley's fluid at intervals of seventy-two hours were completely cured.

7. The rabbits with acute testicular syphilis that received ten intravenous injections of Coley's fluid at intervals of seventy-two hours, together with five intravenous injections of arsphenamine in doses of 0.002 Gm. per kilogram or five intramuscular injections of potassium bismuth tartrate in doses of 0.001 Gm. per kilogram at weekly intervals, were not completely cured.

8. In the rabbits given intravenous injections every two days of 1 cc. of citrated blood taken from human beings from twenty-four to thirty-six hours after malarial paroxysms, there was no rise in temperature, and demonstrable effects on the course of the acute testicular syphilis were not noted.

9. Therefore, the fever of from 2 to 5 F., which lasted several hours and which was induced in rabbits by intravenous injections of increasing amounts of typhoid-paratyphoid vaccine and Coley's fluid, showed much less effect on the course of acute testicular syphilis than the fever induced by hot baths.

10. While the treatment for acute and chronic syphilis in human beings with intravenous injections of typhoid-paratyphoid vaccine and Coley's fluid alone or in combination with chemotherapy has yielded encouraging results, these agents have been without pronounced curative activity in the treatment for acute testicular syphilis in rabbits.

ECZEMA DUE TO FUNGI

REPORT OF A CASE IN AN EIGHTEEN MONTHS OLD BABY*

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The problem of eczema in children is a difficult one, from the point of view of therapy as well as from that of etiology. The modern conception of its pathogenesis groups it with the allergic diseases, such as hay-fever, asthma and urticaria. While food idiosyncrasies undoubtedly play a more important rôle in the eczemas of children than they do in those of adults, we believe that other exogenous factors are much more important than has hitherto been considered.

REPORT OF CASE

History.—A white boy, 18 months of age, was admitted to the pediatric service of Dr. Béla Schick at the Mount Sinai Hospital on Nov. 1, 1930, with the diagnosis of generalized eczema. He was an only child, born at term, with a normal delivery. He was never breast fed. The child was born in the West Indies and came to the United States only recently. The family history was negative for allergic diseases. The rash appeared on the left foot when the boy was 4 months of age, where it is still present. When he was 15 months old, an eruption developed on the rest of the body.

Examination.—The general examination, with the exception of the condition of the skin, showed no pathologic change.

There was an irregular lesion covering about three fourths of the left sole, extending over to its inner side and a short way up the dorsum. The skin in the affected area was markedly reddened and studded with vesicles and pustules, and in places showed scaling and crusting. The border of the lesion was sharply demarcated and tended to be polycyclic. It suggested strongly the picture of the vesiculopustular epidermophytosis. Over the ball of the left foot and extending into the first interspace were similar lesions. The skin of the right heel showed the same changes. On the dorsa of the fourth and fifth fingers of the left hand, extending over to the sides of the fingers and to the side and dorsum of the hand there was a patch like that on the foot. On the dorsa of both feet, on the extremities, on the body and on both cheeks there were scattered vesicular, scaling patches of various sizes that closely resembled the ordinary eczema of children. The flexor surfaces of the knees and elbows were free. On the sides of the fingers of both hands, as well as on the feet, there were single and grouped dyshidrotic vesicles. The child was very fretful and scratched the lesions on the left foot continuously.

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From the Pediatric Service of Mount Sinai Hospital; director, Dr. Béla Schick.

Examination of the blood showed: red blood cells, 4,100,000; white blood cells, 10,600; polymorphonuclear leukocytes, 26 per cent; lymphocytes, 70 per cent, and eosinophils, 4 per cent. Fungi were easily demonstrated microscopically from the large patches on the sole of the left foot and on the right foot, as well as from the vesiculopustular lesions on the left hand. Careful and repeated search of the lesions on the rest of the body did not reveal fungi. The reaction to trichophytin was positive. The case was diagnosed as epidermophytosis of the feet and the left hand with epidermophytids on the rest of the body.

Course.—Whitfield's ointment was applied to the lesions where the fungi were found; the other lesions were not treated. On December 8, the child was discharged, free from any pathologic changes in the skin.

COMMENT

It was interesting to note the quick response to therapy. By the end of the second week the lesions on the body had practically disappeared. The rapid therapeutic effect was due to the fact that the etiologic factor had been removed. In most of our cases of infantile eczema there is a nonspecific ointment therapy with constant exposure to the allergen, which explains the difficulty in treatment and the constant recurrences.

One of us [1] was the first to point out that the dyshidrotic and squamous epidermophytids associated with fungus infections of the feet, especially when they are localized on the hands, clinically and histologically closely resemble eczema. It was maintained that they represent nothing more than an etiologically and pathogenically explained special group of that great symptom complex called eczema. This group differs from an exogenous allergic eczema such as that caused by foods or medicaments only through the special constitution and origin of the allergen (fungus), not however in the pathogenesis (allergic) and still less in its clinical and histologic manifestations.

Sulzberger and Lewis [2] showed that patients with hypersensitivity to trichophytin gave positive reactions to patch tests with this substance, which histologically and clinically were of an eczematous type. They, too, as well as Highman,[3] stressed the importance of the consideration of certain types of epidermophytids as being closely related to eczema.

The finding of fungi from the characteristic vesiculopustular lesions, their absence in the others and the quick response to the therapy support the conception that there was a primary fungus infection

1. Peck, S. M.: Epidermophytosis of the Feet and Epidermophytosis of the Hands, Arch. Dermat. & Syph. **30**:40 (July) 1930.

2. Sulzberger, M. B., and Lewis, G. M.: Trichophytin Hypersensitiveness Demonstrated by Contact Test, Arch. Dermat. & Syph. **22**:410 (Sept.) 1930.

3. Highman, W. J.: Epidermophytosis, Epidermophytids of the Hands, J. A. M. A. **95**:1158 (Oct. 18) 1930.

of the left hand and both feet with secondary allergic manifestations (epidermophytids) on the rest of the body. The positive reaction to trichophytin was of great diagnostic value, and is a strong support for our contentions because of its rarity in this age group.[4]

4. Rosen, I.; Peck, S. M., and Sobel, N.: The Incidence of the Tricophytin Reaction in the Casual Dermatologic Patient, Arch. Dermat. & Syph. **23**:1041 (June) 1931.

SCHIZOSACCHAROMYCOSIS

I. THE PRESENT STATUS OF IDENTIFICATION OF SCHIZOSACCHAROMYCES HOMINIS AND ITS RESULTS *

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The discovery of *Schizosaccharomyces hominis* Benedek, 1927, was made five years before the present writing.[1] This peculiar parasite was first cultivated from the subcorneal, sago grain-like vesicular efflorescences in a case of cheiropompholyx of Hutchinson. Systematic inquiries conducted along mycologic [2] and immunobiologic [3] lines then showed evidence that a number of erythematosquamous dermatoses hitherto described under various names are etiologically due, solely or primarily, to *Schizos. hominis.* The dermatoses thus far recognized as coming under schizosaccharomycosis are: (1) seborrheic eczema of Unna with all its variants [4] (séborrhéides of Brocq, Audry and Hallopeau, eczématide of Darier, pityriasis of Sabouraud, exudative and delayed exudative eczematoid of Rost, etc.); (2) sycosis vulgaris sive coccogenes; [5] (3) seborrheic rosacea; (4) pityriasis rosea of Gibert; [6] (5) pompholyx of Hutchinson (dyshidrosis of Tilbury Fox [7]); (6) the so-called constitutional infantile eczema described by pediatricians, and (7) erythroder-

* Submitted for publication, Jan. 27, 1931.

* From the Mycologic Laboratory of Dr. T. Benedek.

1. Benedek, T.: Ueber Schizosaccharomykose, Arch. f. Dermat. u. Syph. **152:** 109, 1926.

2. Benedek, T.: Schizosaccharomyces hominis, nov. spec., die erste menschenpathogene Spalthefe, Zentralbl. f. Bakteriol. **104:**291, 1927.

3. Benedek, T.: Ueber immunbiologische Vorgänge bei der Schizosaccharomykose (Spalthefe), Acta dermat.-venereol. **9:**76, 1928.

4. Benedek, T.: Ueber Schizosaccharomykose (Spalthefemykose): I. Mitteilung: Aetiologie, Pathogenese, Klinik, Serumdiagnose, Allergie, Arch. f. Dermat. u. Syph. **156:**18, 1928; II. Mitteilung: Uebertragungsversuche, Histologie, Therapie, ibid. **157:**483, 1929.

5. Benedek, T.: Schizosaccharomycosis sycosiformis, Dermat. Wchnschr. **86:**425, 1928. Benedek, T., and Frühwald: Ein Fall von Schizosaccharomykose, ibid. **87:**1566, 1928.

6. Benedek, T.: Schizosaccharomykid, Dermat. Wchnschr. **86:**536, 1928; Schizosaccharomykid mit pityriasiformen und pompholyciformen Effloreszenzen (Pityriasis rosea, Gibert und Pompholyx, Hutchinson), ibid. **90:**633, 1930.

7. Benedek, T.: Schizosaccharomycosis pompholyciformis, Dermat. Wchnschr. **89:**1355, 1929. Benedek and Greif: Beitrag zur Kenntnis und Therapie des Pompholyciformen Schizosaccharomykids (sog. "echte," "amykotische" Dyshidrosis), ibid. **90:**166, 1930.

mia desquamativa of Leiner.[8] It would seem that this does not exhaust the series of dermatoses whose causative connection with *Schizos. hominis* may be shown by further investigation.

Systematic mycologic study of *Schizos. hominis* showed morphologic evidence of a high grade polymorphism, and biologically an uncommonly lively activity (casease, protease, hemolysins, formation of toxins). The parasite forms endospores and is extraordinarily resistant to chemical and thermal influences. It is found in the morbid products of the surface of the skin (scales, pus, hair) in the form of spores only, so that its identification by potassium hydrate in fresh samples—similar to the identification of *Hyphomycetes*—cannot be fully relied on. The only safe method is cultural identification. On the other hand, it is often possible to identify *Schizos. hominis* in its vegetative forms from closed efflorescences of the integument (vesicles, nodes) by using stained smears instead of cultural procedures. I have succeeded in identifying

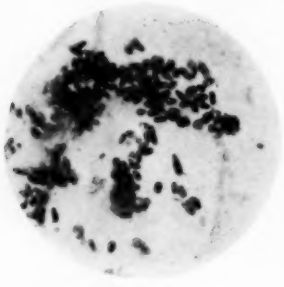

Fig. 1

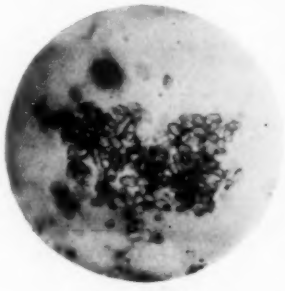

Fig. 2

Fig. 1.—Schizos. hominis: smear from the punctate of a subcutaneous node of the axilla (abcès tubéreux de l'aisselle, Vernuill and Velpeau). The parasite shows vegetative forms. From a Gram preparation. Zeiss Phoku: 1/12 oil immersion, + H6, 2 ×.

Fig. 2.—Schizos. hominis: smear from a subcorneal, sago grain-like vesicle of pompholyx Hutchinson. The parasite is present in vegetative forms. From a Gram preparation. Zeiss Phoku: 1/12 oil immersion, + H6, 2 ×.

it from the contents of closed nodes of the axillae (abcès tubéreux de l'aisselle, Verneuil and Velpeau) (fig. 1). These nodes have nothing to do with abscesses of the sudoriparous glands (hidradenitis). In its vegetative forms *Schizos. hominis* can be identified further from the subcorneal, sago grain-like vesicular efflorescences of palms and plants in stained smears (preferably colored by May-Grünwald-Giemsa's method) in the disease called dyshidrosis of T. Fox, pompholyx of Hutchinson or, especially in the American literature, "epidermophytid" (fig. 2).

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8. Benedek, T.: Ueber Schizosaccharomykose (eine Synthese), VIII. Intern. Dermat. Kong., Copenhagen, August, 1930.

For the cultural identification of *Schizos. hominis* in morbid products from the surface of the body and deep layers of the tissues (closed efflorescences: vesicles, nodes, abscesses) and from circulating blood, respectively, the following methods are now available: (1) cultures from scales of the skin (scales, hair, pus), (2) direct blood cultures, (3) indirect blood cultures (cantharidin method) and (4) centrifugation (citrate method). The optimal cultural methods in use in these four groups

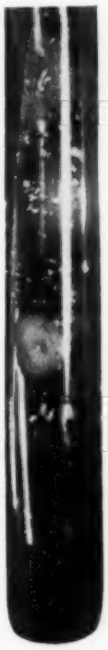

Fig. 3

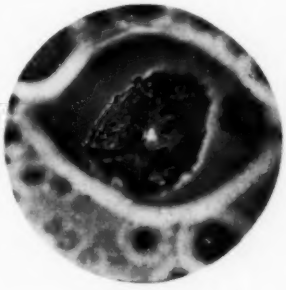

Fig. 4

Fig. 5

Fig. 3.—Primary culture of Schizos. hominis from scales of pityriasis capitis; forty-eight hour old incubation, at 27 C. on 8 per cent dextrose agar. In the midst of the tube a grayish-white bulging colony, about the size of a cent, is seen. The remaining scales have proved sterile.

Fig. 4.—Schizos. hominis in situ on 8 per cent dextrose agar; forty-eight hour old incubation, at 27 C., from scales of bends of the elbow in seborrheic eczema of Unna ("delayed exudative eczematoid" of Rost). On one epidermal cell are seen distinctly some typical (skin type) cells of the parasite, part of them in division. From a permanent specimen, vital stain with Loeffler's methylene blue (methylthionine chloride U. S. P.). Zeiss Phoku: 1/12 oil immersion, + H6, 2×.

Fig. 5.—Schizos. hominis from scales of pityriasis capitis on 8 per cent dextrose agar; eight day old incubation, at 27 C. One sees the extreme polymorphism of the parasite. From a permanent specimen, vital stain with Loeffler's methylene blue. Zeiss Phoku: 1/12 oil immersion, + H6, 2×.

differ materially from one another. The material on which my conceptions and observations are based in mycologic, immunobiologic and serologic respects includes 1,400 cases.

CULTURES FROM SCALES OF THE SKIN

In order that a primary culture (figs. 3, 4 and 5) from morbid products of the surface of the skin may prove positive, three factors of importance must generally be considered: (*a*) optimal inoculation, (*b*) the optimal medium and (*c*) the optimal temperature.

For primary inoculation from scales, etc., from forty to a hundred small particles should be used on account of the enormous disproportion existing between the amount of the morbid products and their content of culturable germs. The morbid products are very poor in germs, since the pathogenic agent (micro-organism) in its fight against the human body (macro-organism) is partly destroyed—which accounts for the spontaneous retrogression of clinical phenomena—and partly injured in its vitality to so large an extent that it is no longer likely to show vegetation when transferred to an artificial medium.

For primary inoculation the 8 per cent dextrose agar that I have previously suggested is the medium of choice, because on whichever of the routine mediums (Sabouraud, Gruetz) *Schizos. hominis* may grow, it does not prove so characteristic in its colonies, so typical in its forms or thrive so safely as on this special medium. The formula is:

	Gm.
Dextrose (Merck)	8.0
Salt-free peptone (Merck)	1.0
Agar	2.0
Distilled water	100.0

Its hydrogen ion concentration is from 6.9 to 7.1. An important advantage of this medium lies in the fact that all the spores and germs possibly contained in the material to be inoculated do not escape the investigator's notice, but multiply indiscriminately, provided they are aerobes. The selectivity of this medium for the primary seeding is a function of the cultivation temperature chosen.

The optimal temperature for the cultivation of *Schizos. hominis* is 27 C. It is the inferior limit of the optimum temperature of growth of these parasites (from 27 to 37 C.) and lies between two very important limits of temperature, namely, the inferior one for molds (18 C.) and the superior one for bacteria (37 C.). Through the choice of the temperature for cultivation the cultures are prevented from being outgrown by molds and bacteria in the space of time important to *Schizos. hominis* alone, namely, in from twenty-four to forty-eight hours after inoculation. In order to secure a positive culture, it is necessary to inoculate

from three to five test tubes. If *Schizos. hominis* is present in a seed, its colony reaches the size of a lentil or halfpenny on my special medium, at 27 C., long before the first twenty-four to forty-eight hours have elapsed (fig. 3). The optimal cultivation temperature of 27 C. for "forcing cultural response" on *Schizos. hominis* has nothing to do with the surface temperature of the integument, which ranges from 25 to 27 C. The assumption of Kadisch [9] on this point is erroneous.

The selectivity of my special medium, the definite mode of inoculation, the decisive influence of the temperature used in cultivation and the hydrogen ion concentration of the medium have already been checked and confirmed by various authors (P. Unna, Jr., and Keil,[10] Hamburg; Keil;[11] Engelhardt and Schneider,[12] Giessen; Bruhns and Kadisch,[13] Berlin; Riecke,[14] Göttingen; Urbach,[15] Vienna; Dowling,[16] London; Muijs,[17] Amsterdam, and Reiss,[18] Shanghai).

The study (liberal inoculation on my 8 per cent dextrose agar medium, p_H 6.9 to 7.1, at 27 C.) of more than 3,000 primary cultures of scales from the body surface in a series of more than 250 cases yielded positive results for *Schizos. hominis* in about 10 to 15 per cent (on an average, 12.5 per cent) of the inoculated test tubes. I wish to emphasize particularly that this number should not be confused with the positive cultural results obtained in individual cases of schizosaccharomycosis, since all such cases give positive results for *Schizos. hominis*. The question arises as to when this happens. In order to prevent misunderstanding, I should like to point out that positive results are obtained in the majority of cases by one series of cultures (from three to five test tubes). There are, however, cases in which even an uninterrupted series of cultures does not yield positive results before six to ten weeks—provided that the scales have been taken recently. This applies especially to those cases in which one has to deal with a "psoriasiform" scaling (seborrheic psoriasiform eczema of Unna).

Continuous attempts at cultivation in 600 individual cases further resulted in the surprising and noteworthy fact that in one series of cultures (from three to five tubes) positive results constantly averaged

9. Kadisch, E.: Acta dermat.-venereol. **11**:38, 1930.
10. Unna, P., and Keil: Dermat. Wchnschr. **87**:1892, 1928.
11. Keil, E.: Zur Klinik der Spalthefemykosen, Dermat. Wchnschr. **88**:427 1929.
12. Engelhardt; Schneider, and Nicolai: Arch. f. Dermat. u. Syph. **157**:588 and 597, 1929.
13. Bruhns and Kadisch: Zentralbl. f. Haut- u. Geschlechtskr. **29**:412, 1928.
14. Riecke, in discussion of Benedek: Arch. f. Dermat. u. Syph. **160**:115, 1930.
15. Urbach, in discussion of Benedek (footnote 14).
16. Dowling, G. B.: Brit. M. J. **2**:947, 1929.
17. Muijs: Personal communication to the author.
18. Reiss, in discussion to Benedek (footnote 14).

12.5 per cent. Repeated taking or collecting of scales and fresh cultures secured from them led, in turn, to positive results in different periods of cultivation.

It is of particular importance to investigate these peculiar facts: on the one hand, because my statements have given rise to various errors (Engelhardt, Schneider and Nicolai) or to false conclusions (Kadisch); on the other hand, because the very "capriciousness" with which cultures of cutaneous scales yield positive results in schizosaccharomycosis is intimately connected with the pathogenesis of the morbid process, namely, the migration of *Schizos. hominis* outward through the whole depth of the cutaneous stratum.

In taking scales one may encounter material that is filled with *Schizos. hominis* which has wandered as far as the horny layer. This is the case when scales develop to only a moderate extent (parakeratosis) and when only enough can be collected to inoculate from three to five test tubes. When the degree of scaling is only moderate, the local inflammation and therefore the destruction of *Schizos. hominis* in the scales are slight. The degree of scaling and inflammation is a frank index of the magnitude and intensity of the struggle between the micro-organism and the macro-organism, i. e., *Schizos. hominis* and *Homo sapiens,* respectively. The difficulties increase almost in proportion to the intensity of the inflammation and the density of scaling (psoriasiform parakeratosis). In these cases the parasites (*Schizos. hominis*) in the morbid products are destroyed to so great an extent that one is often obliged to take fresh scales again and again until there are only a few specimens of slightly injured germs, just capable of growth, in the parakeratotic morbid products.

There is therefore the most intimate connection between variation in the time when cultures of scales prove positive for *Schizos. hominis,* on the one hand, and the pathogenesis of the whole of the morbid process, on the other hand. This variation in time is a function of two variants: (*a*) the intensity of the local inflammation and (*b*) the density of the parakeratotic scaling. This assertion and empiric experience can be supported with mathematical exactness by data of variational statistics.

Thus Bruhns and Kadisch,[13] who carried out over 600 transfers from more than 500 subjects, by liberally inoculating five or more test tubes of my 8 per cent dextrose agar, obtained a growth of *Schizos. hominis* in 25.6 per cent of their transfers. In one series of cases they obtained a positive result only after several transfers. In 50 cases they performed the transfer twice, in 15 cases three times, and in 1 patient six times before they were successful in growing *Schizos. hominis.* In other words, in a promiscuously assembled material of

about 500 cases the minimum of transfers required to obtain a positive culture of *Schizos. hominis* amounted to at least 2 in 10 per cent of the cases ($3m = \pm 4.02$; limiting values of the percentages: 5.98 to 14.02), to at least 3 transfers in 3 per cent of the cases ($3m = \pm 2.28$; limiting values of the percentages: 0.72 — 5.28) and to at least 6 in 0.2 per cent of the cases ($3m = \pm 0.6$; limiting values of the percentages: — 0.4 to 0.8).[19] These results which I computed on the basis of the 500 cases of Bruhns and Kadisch agree completely with those which I obtained in 600 cases of my own.

TABLE 1.—*Positive Results of the Cultivation of Schizosaccharomyces Hominis from Scales*

Author	No. Cases	Disease	Positive Cultural Results, per Cent
Benedek	600*	Eczema seborrhoicum of Unna; pityriasis capitis simplex; sycosis vulgaris; seborrheic rosacea; pityriasis rosea	12.5
Bruhns and Kadisch	500	Eczema seborrhoicum of Unna; pityriasis capitis	25.6
Engelhardt, Schneider and Nicolai	300	Eczema seborrhoicum of Unna; pityriasis capitis	24.0
Keil	100	Eczema seborrhoicum of Unna; sycosis vulgaris; seborrheic rosacea; pityriasis rosea	50.0

* The cultural results obtained in the other dermatoses quoted in the beginning of this paper and not mentioned here are not included in this figure.

TABLE 2.—*Limits of the Percentages of the Positive Cultural Results with Consideration of m and 3m in a Single Seed of Material*

Author	Per Cent	m	Limiting Values	3m	Limiting Values
Benedek	12.5	12.5 ± 1.35	11.15 to 13.85	12.5 ± 4.05	8.45 to 16.55
Bruhns and Kadisch	25.6	25.6 ± 1.95	23.65 to 27.55	25.6 ± 5.85	19.75 to 31.45
Engelhardt, Schneider and Nicolai	24.0	24.0 ± 2.46	21.54 to 26.46	24.0 ± 7.38	16.62 to 31.38
Keil	50.0	50.0 ± 3.95	46.05 to 53.95	50.0 ± 11.85	38.15 to 61.85

Table 1 gives the percentage of positive results obtained up to the present in the cultivation of *Schizos. hominis* from the morbid products of the erythematosquamous dermatoses enumerated at the beginning of this paper.

On the basis of the results recorded in tables 1 and 2, it can therefore be established that there is a considerable discrepancy between the positive results obtained from cultivation by those authors who have published statistical data drawn from their material. It does not seem out of place to inquire into the causes that may underlie these discrepancies.

19. m represents mean error.

Since Bruhns and Kadisch, Engelhardt and Schneider, and Keil have conducted their work closely on the lines of the cultural procedure that I suggested (liberal seeding, 8 per cent dextrose agar, at 27 C.), this uniformity excludes the possibility that the discrepancies in the end-results are due to a deviation from my directions. There are, however, two other possibilities: The discrepancies may be due to external or internal factors or both—to contamination of the laboratory (when there is an "excess") or to the condition of the test object (when there is a "deficit").

When taking into account 3m, which comprises all the possible and accidental variations of the calculated values, it is seen that the limiting values of the positive cultural results given in table 2 should be divided into three groups.

The results of Bruhns and Kadisch as well as those of Engelhardt and Schneider tally with one another completely. Even when, in order to proceed exactly and obtain more precise information, the mean error of the difference [m (difference) $= \pm \sqrt{m_1^2 + m_2^2}$] is calculated, it proves to be 3.14 per cent (trebly, 9.42 per cent). This difference, which amounts to merely 0.51 times the mean error, is absolute evidence that there are no discrepancies between the results obtained by Bruhns and Kadisch and by Engelhardt and Schneider.

My positive results lie on this side, and those obtained by Keil on the other side, of the margin of variation of the numeric results obtained by Bruhns and Kadisch and by Engelhardt and Schneider, so that they seemingly cannot be assumed to be due to mere contingencies. Although I have here calculated the mean error of the difference with a view to clearing up the differences exactly, I can nevertheless establish the fact that the mean error of the difference between my results and those of Bruhns and Kadisch and of Engelhardt and Schneider amounts to 2.4 per cent, i. e., to 5.4 times its mean error. Between the results of Keil and those of Bruhns and Kadisch as well as of Engelhardt and Schneider, the mean error of the difference is 4.51 per cent, i. e., 5.4 times its mean error.

In accordance with the hypotheses of the rule of probabilities, a difference amounting to at least three times its mean error is conclusive evidence of the reality of the difference prevailing between two values. In the results obtained by Benedek and Keil as compared with those of Bruhns and Kadisch as well as those of Engelhardt and Schneider, the mean error of the difference amounts to 5.4 times its mean error. Hence a real difference exists.

For the purpose of elucidating these absolute differences it is necessary to discuss the aforementioned questions: (*a*) contamination of the laboratory (external causation, "excess"); (*b*) the condition of the test

object (internal causation, "deficit"). Bruhns and Kadisch as well as Engelhardt and Schneider witnessed contamination of the inoculation rooms during the various stages of cultivation. Engelhardt and Schneider checked contamination of the laboratory by appropriate steps and in subsequent examinations obtained negative results, in accord with those obtained by Benedek and Keil. In their results, Bruhns and Kadisch took account of contamination, as they insisted on the lowest percentage being sufficiently reliable (25.6 per cent). In addition, they stated emphatically that they had excluded from their studies the strongly scaling forms of this mycosis. By doing so, they had, however, according to my consistent experience and the results of Benedek and Keil, arbitrarily shifted the percentage of the positive results of cultivation in the direction of the "excess." While I had indiscriminately taken into account cases of mycoses with both slight and marked desquamation, thus shifting the percentage of the positive results in the direction of a "deficit," the high positive results obtained by Keil are plainly due to the fact that he studied only clinically well established cases, as he himself stated explicitly.

It can therefore be stated that positive cultures of *Schizos. hominis* are decisively influenced by the acuteness of inflammation and the degree of scaling in the focal lesion.

Without having recognized these fundamental features, Engelhardt and Schneider as well as Kadisch sought to explain this phenomenon as the result of contamination of the laboratories and incubators with spores of *Schizos. hominis.* Whereas Engelhardt and Schneider, by adhering to the most elementary rules of bacteriologic inoculation, easily overcame contamination of the laboratory and then demonstrated the purity of the air by routine plating, both the effective checking of contamination and the indispensable test for the purity of the air—the most important criterion of accurate work with *Schizos. hominis* [20]—are unfortunately missing in the studies of Kadisch.[9]

The four authors quoted in table 1 base their conclusions, therefore, on 1,560 culturally tested cases with a mean percentage of 28.02 ($3m = \pm 3.39$; limits: 24.63 to 31.41 per cent) of positive results. Without entering into particulars, G. B. Dowling, Muijs (40 per cent), Riecke (33 per cent), Urbach and Smetana [21] reported further positive results of cultivation.

With a view to showing the false conclusions to which Engelhardt and Schneider, and particularly Kadisch, have come, I present the

20. Benedek, T.: Ueber die Blutkulturen des Schizosaccharomyces hominis, Dermat. Ztschr. **56**:431, 1929; **57**:82, 1929.

21. Smetana: Centralbl. f. allg. Path. u. path. Anat. **46**:225, 1929.

following series of experiments, which may serve as an illustration of the effective conditions.

In my laboratory, contamination of the air by spores of *Schizos. hominis* did not take place at any stage of the work. The place of inoculation, the shelves, incubators, icebox, etc., were from time to time tested for purity of air by means of plating (on 8 per cent dextrose agar) during the time of exposure, from five minutes to forty-eight hours. In the meantime, a great many 15 cm. plates lay open in the course of inoculation of scales, etc., as well as during the cleaning of the workroom. *Schizos. hominis* could never be captured. On the contrary, manifold air yeasts, strains of molds, sarcinae, cocci, etc., the multiplicity of which was dependent on the length of time the plates were exposed, could be identified after incubation.

TABLE 3.—*Results of Attempts to Cultivate Schizos. Hominis by "Skimming" Transplantation and Air Control*

		Transplantation		Positive Cultures of Schizos. hominis, Calculated From the Number of	
Date	Experiment	From Cases	To Test Tubes	Cases, per Cent	Test Tubes, per Cent
3/21/30	1	26	36	+ 3 = 11.7	+ 4 = 11.1
4/29/30	2	30	94	+10 = 33.3	+13 = 13.8
5/ 5/30	3	22	62	+ 4 = 18.2	+11 = 17.7
5/24/30	4	36	82	+16 = 44.5	+24 = 29.27
6/ 5/30	5	24	38	+ 5 = 20.8	+ 9 = 23.7
6/23/30	6	8	19	+ 2 = 25.0	+ 2 = 10.52
Total		146	331	+40 = 27.4	+63 = 19.3

If the work is accurate, contamination of the air of the laboratories by spores of *Schizos. hominis* will probably not occur, so that the objections of Kadisch in this respect are groundless, provided even the most elementary rules of inoculation are carefully observed.

In table 3, I have listed a longer series of experiments with a view to showing boldly the variation in the percentage of positive cultures. During these series of experiments manifold tests with *Schizos. hominis, Hyphomycetes* and various bacteria were carried out in my laboratory, and the air—especially in the inoculation room—was thoroughly tested for purity by means of plating. The result was always the same, just as in previous, repeated trials: No *Schizos. hominis* was captured. The material itself—scales from pityriasis capitis—was collected in small boxes, just out of the factory and not yet employed for other purposes, and brought to me. Each patient collected as many scales as possible. In this connection it is noteworthy that in almost half of the cases the patients could collect so few scales that, *lege artis*, only a single test tube could be inoculated with them.

Tables 3, 4 and 5 show that the variation of the positive percentages within a series of experiments is dependent on the number of cases and on the number of inoculated test tubes, i. e., on the amount of the material to be inoculated. On duly taking account of 3m, which is known to comprise all the possible and fortuitous variations, one sees that "true" differences in the yield of the positive cultural values in the six series of experiments do not exist, for when the positive outcome of the cultivation is calculated from the number of the cases or, a procedure that I now consider more correct, from the number of test

TABLE 4.—*Limiting Values of the Percentages of the Positive Results Obtained for Schizos. Hominis and Calculated from the Number of the Test Tubes*

Experiment	Positive Cases, per Cent	m	Limits of the Percentages	3m	Limits of the Percentages
1	11.7	11.7 ± 6.3	5.4 to 18.0	11.7 ± 18.9	— 7.2 to 30.6
2	33.3	33.3 ± 8.6	24.7 to 41.9	33.3 ± 25.8	7.5 to 59.1
3	18.2	18.2 ± 8.22	9.98 to 26.42	18.2 ± 24.66	— 6.46 to 42.86
4	44.5	44.5 ± 8.28	36.22 to 52.78	44.5 ± 24.84	19.66 to 69.34
5	20.8	20.8 ± 8.28	12.52 to 29.08	20.8 ± 24.84	— 4.04 to 45.64
6	25.0	25.0 ± 15.3	9.7 to 40.3	25.0 ± 45.9	—20.9 to 70.9

TABLE 5.—*Limiting Values of the Percentages of the Positive Results Obtained for Schizos. Hominis and Calculated from the Number of the Test Tubes*

Experiment	Positive Test Tubes, per Cent	m	Limits of the Percentages	3m	Limits of the Percentages
1	11.1	11.1 ± 5.23	5.87 to 16.33	11.1 ± 15.69	— 4.59 to 26.79
2	13.8	13.8 ± 3.55	10.25 to 17.35	13.8 ± 10.65	3.15 to 24.45
3	17.7	17.7 ± 4.84	12.86 to 22.54	17.7 ± 14.52	3.18 to 32.22
4	29.27	29.27 ± 5.02	24.25 to 34.29	29.27 ± 15.06	11.21 to 44.33
5	23.7	23.7 ± 6.9	16.8 to 30.6	23.7 ± 20.7	3.0 to 44.4
6	10.52	10.52 ± 7.03	3.49 to 17.55	10.52 ± 21.09	—10.57 to 31.61

tubes, it appears that there is either complete or conspicuous coincidence in value.

Hence the six series of experiments yield — 20.9 to 70.9 per cent as the extreme limits of all the possible and contingent variations in the number of positive cases, and — 10.57 to 44.4 per cent in the number of postive test tubes.

The results contained in table 6 reveal strikingly the dependence of the positive percentages of the cultivation on the amount of the material available and inoculated during a series of experiments. Table 6 shows distinctly that the percentages of positive results are constant for each case and material up to five test tubes, and that they rise from 14.28 to 71.42. These figures are additional corroboration of my own empiric observations, namely, that in the prevailing majority of cases

positive results are obtained by a single subculture when from three to five test tubes are used. It is seen from table 6 that with the inoculation of five test tubes a positive culture may be expected in from 52.07 to 90.77 per cent.

One more striking fact can be noted in table 6, i. e., the sudden decrease in the number of the positive cultures when the number of test tubes inoculated was more than from five to ten, owing to a more copious supply of material. While previously a positive result of 71.42 per cent had been obtained by the inoculation of as many as five test tubes, the positive percentage suddenly decreased to 55.55 when there was an opportunity to inoculate six test tubes. As I have already pointed out, this outcome of cultivation is intimately connected

TABLE 6.—*Positive Results in 146 Cases (331 Test Tubes) in which Scales Were Collected at One Time*

No. of Inoculated Test Tubes	No. Cases	No. Positive Cases	Per Cent	m	3m	Limits of the Percentages with 3m
1	70	10	14.28	± 4.18	± 12.54	1.74 to 26.82
2	33	8	24.24	± 7.46	± 22.38	1.86 to 46.62
3	14	5	35.7	± 12.8	± 38.4	−2.7 to 74.1
4	10	6	60.0	± 15.5	± 46.5	13.5 to 106.5
5	7	5	71.42	± 6.45	± 19.35	52.07 to 90.77
6	9	5	55.55	± 16.57	± 49.71	5.84 to 105.26
7	1					
9	1	1				
10	1					
	146	40				

with the pathologic processes occurring in the diseased human integument. The more violent the inflammation and the more profuse the scaling (parakeratosis) are, the more readily do the still culturable germs contained in the scaly masses perish.

Engelhardt and Schneider inoculated double the amount of scales—from 150 to 200—in each of three to five test tubes on the assumption that they would obtain twice as many positive results. Nevertheless, with the same number of cases (300) they obtained the same results as I did. On the contrary, Kadisch claimed to have obtained a positive result of only 1.5 per cent in 211 cases, using, on an average, ten test tubes to each case. Allowance being made for 3m, the margin of variation of this percentage is from 1 to 4. Therefore, since Kadisch worked throughout with 211 selected cases (it is impossible that the selection was haphazard), and since the marked scaling presented furnished material enough for the inoculation of ten test tubes, one need not wonder at the results nor resort to explanations formal, superficial and, as far as other authors are concerned, unproved as the contamination of the workroom.

In tests 1 to 6 the following micro-organisms were detected besides *Schizos. hominis:* (1) coccus polymorphus Cedercreutz, (2) *Bacillus subtilis,* (3) bacilli (various unnamed species), (4) *Penicillium glaucum* Fres, (5) yeasts (cryptococci and mycelia-forming yeasts), (6) *Streptococcus mucosus,* (7) *Mucor mucedo,* (8) various other unnamed strains of molds and (9) *Saccharomyces rosaceus.* In 11 of 146 cases (7.55 ± 2.18 per cent) the cultures resulted in a pure growth of *Schizos. hominis* in all the inoculated test tubes, which amounts to 27.5 ± 7.06 per cent of all the positive cases (40). In 17 of 146 cases (11.66 ± 2.65 per cent) all of the inoculated test tubes remained sterile. Among the 40 positive cases there developed only one colony of *Schizos. hominis* in 27 cases each (67.5 ± 7.4 per cent), whereas in 13 cases (32.5 ± 7.4 per cent) there grew from two to six colonies of *Schizos. hominis.*

On the strength of these statistics it can be said that mixed cultures occur in the cultivation of *Schizos. hominis* from morbid products (scales) of the integument. In this connection two groups of mixed cultures should be differentiated: 1. With the first group I class all those cultural observations in which there are other harmless nosoparasites in association with *Schizos. hominis:* (*a*) *Schizos. hominis* plus *Cryptococcus malassezi* (*Pityrosporum malassezi,* Sabouraud, 1895) emend. Benedek, 1929;[22] (*b*) *Schizos. hominis* plus coccus polymorphus Cedercreutz; (*c*) *Schizos. hominis* plus yeasts, in the broadest sense of the word. 2. To the second group belong those mixed cultures in which in addition to *Schizos. hominis* other pathogenic micro-organisms are at work, so that the classic clinical forms of schizosaccharomycosis are partly or fully masked by the autonomous clinical pictures provoked through secondary contamination by other pathogenic micro-organisms. Here one must consider (*a*) *Schizos. hominis* plus *Staphylococcus pyogenes-aureus,* (*b*) *Schizos. hominis* plus *Hyphomycetes* and (*c*) *Schizos. hominis* plus streptococci.

Check Examinations.—It has been shown that one can grow *Schizos. hominis* from cultures of scales produced in the erythematosquamous dermatoses mentioned at the beginning of this paper. This fact has been confirmed by check examination. Now the question arises as to whether it is possible to grow *Schizos. hominis* from the clinically unaltered and intact integument of healthy subjects or from healthy spots in the skin of persons with schizosaccharomycosis. In my own extensive examinations I have never succeeded in growing *Schizos. hominis* either from intact spots in the skin of healthy subjects or

22. Benedek, T.: Cryptococcus malassezi, Zentralbl. f. Bakteriol. **116**:317, 1930.

from sound skin of persons suffering from schizosaccharomycosis. Keil reached the same result in his likewise extensive examinations. Engelhardt and Schneider also showed the impossibility of culturing *Schizos. hominis* from 15 subjects with sound skin and no demonstrable dandruff; nor did 45 cases of dermatoses, such as psoriasis, eczema and trichophytosis, yield cultures of *Schizos. hominis* either from dandruff or from material taken from diseased skin. These authors were, in turn, successful in growing one definite culture each of *Schizos. hominis* from scraped off scales of the sound skin of the forearm in 2 patients with gonorrhea and pityriasis capitis sicca. In both these cases the culture grown from dandruff was also positive. It appears from the interpretation which these authors gave their observations that they had clearly recognized the essential connection linking these facts to one another.

TABLE 7.—*Cultural Results of Finger-Washings*

No.	Species	No. Positive Results	Per Cent
1	Schizos. hominis	35	27.00
2	Streptococci	63	49.24
3	Sarcinae	11	8.60
4	B. subtilis	36	28.14
5	Budding yeasts	11	8.60
6	Cocci	69	54.08
7	Coccus polymorphus	7	5.50
8	Bacilli	57	44.50
9	B. coli	9	7.04
10	Zooglea	8	6.26
11	Diplococci	2	1.60
12	Staphylococci	4	3.14

Nothing can be done with Kadisch's statement about finding *Schizos. hominis* in scales from clinically sound cutaneous spots on clinically healthy persons, because this author considers both here and elsewhere only contamination of the laboratory without testing the air or examining the scalp of the patients. This, however, is the punctum saliens.

A region of the body from which *Schizos. hominis* can often be grown, even in the presence of an entirely sound integument, is the finger-nails. To elucidate this question I used a fluid medium, namely, my 5 per cent dextrose broth, p_H 7.2, contained in small large-mouthed Erlenmeyer flasks. The patients successively immersed their fingers in the sterile medium, and the flasks were then shaken vigorously. The test was carried out separately for the fingers of the left and right hand. The cultures were incubated at 27 C. and the result ascertained after from forty-eight to seventy-two hours. In table 7 are recorded the results of the "finger-washings" in 128 cases.

The interesting fact was noted that in only 50 cases were the fingers of both hands infested with the same germs (39.08 ± 12.93

per cent), while in 78 cases (60.92 ± 12.93 per cent) the number of germs on the fingers on the left and right hands differed widely.

Schizos. hominis was cultivated from the fingers in 35 cases (27 ± 11.76 per cent). It was encountered on the fingers of both hands three times alone and twice with other micro-organisms. It was cultivated from the fingers of the right hand sixteen times and from those of the left hand fourteen times. These findings are most intimately related to pityriasis capitis, that is, to scratching of the scalp due to various degrees of itching. Worried by the itching, the patients scratch the scalp in places till blood comes. The opportunity is thus given for *Schizos. hominis* to reach the finger-nail from deeper layers of tissue, despite the absence of much superficial scaling. The scalp is empirically known to be the constant habitat of *Schizos. hominis.*

Among the remaining micro-organisms attention should further be paid particularly to the frequent incidence of streptococci. In this series they were encountered with extraordinary frequency, although a careful search did not reveal lesions on the integument.

Negative Observations of Other Authors.—Buschke [23] and Scholz [24] have stated that so far they have not been able to cultivate *Schizos. hominis,* but as they have not yet published their material, it is not possible to account for the failure of their experiments.

Biberstein and Epstein [25] tested about 40 patients with definite schizosaccharomycoses (pityriasis simplex, seborrheic eczema, sycosis non parasitaria), but could not grow *Schizos. hominis,* probably because they were not versed in the technic of cultivation. There is, however, another and more profound reason underlying this failure. In more than 1,500 cases cultural tests for *Schizos. hominis,* yielding a mean percentage of 28.02, had already been carried out prior to the report of these authors. On this basis, therefore, had they calculated the maximum percentage of the zero-yield within the treble mean error ($v = 0.57$) they could not but have recognized at once that since the desirable accuracy was $v = 0.57$, it was necessary to test about 854 cases in addition to their 40 negative cases. Had they chosen, however, to enlarge the field of their series of experiments in a moderate measure—as I have done—to about 600 cases, with a view to reaching an accuracy of $v = 1.5$, even then it would have been necessary to examine 551 more patients in order to reach a positive cultural yield of from 8.5 to 16.5 per cent.

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23. Buschke: Dermat. Ztschr., 1929, vol. 57.

24. Scholz, in discussion of Benedek (footnote 14).

25. Biberstein and Epstein: Zur Frage der "Schizosaccharomykose" Benedek, Arch. f. Dermat. u. Syph. **159**:250, 1930.

The "negative results" of Biberstein and Epstein should be a warning example and afford protection against superficial and hasty conclusions. Even these authors will not fail to detect *Schizos. hominis*, hitherto "searched for in vain" at Breslau, if they resort to an adequate series of experiments.

DIRECT BLOOD CULTURES

As a general rule, difficulties due to the presence of other micro-organisms, either nosoparasitic (yeasts in the broadest sense of the word, molds) or pathogenic (*Staph. pyogenes-aureus*, *Hyphomycetes* streptococci), in the detritus of the scales to be seeded are lacking in blood cultures.

The cultural response (Anzüchtung) of *Schizos. hominis* from the blood current can be elicited only in liquid nutrient mediums. For this purpose I have used my 5 per cent dextrose broth, the composition of which is as follows:

	Gm.
Standard nutrient broth (powder) (Merck)	25.0
Dextrose (Merck)	50.0
Distilled water	1,000.0

The hydrogen ion concentration of this culture medium is 7.2. It is of paramount importance to prepare a larger amount (from 3½ to 7 pints [1.6 to 3.3 liters]) of dextrose broth at once and, if possible, not to submit to sterilization too frequently, as this causes a shift of p_H. As a rule, the blood used was diluted 1:6. At 27 C. the blood cultures became positive in from twenty-four hours to four weeks. In no instance observed was the interval longer. The blood cultures either yielded positive results in regard to *Schizos. hominis* or remained absolutely sterile during an observation period of up to four months, that is, without exhibiting the growth of any other micro-organism. The primary positive blood cultures of *Schizos. hominis* have always been subcultured from the liquid medium on 8 per cent dextrose agar, for that is a sine qua non condition. It often happens that the primary positive blood cultures of *Schizos. hominis* cannot be transferred from the fluid culture medium to the solid one (8 per cent dextrose agar) unless they have previously been submitted to from three to eight broth passages.

Altogether 206 patients with schizosaccharomycosis have been tested by direct blood cultures; that is, the blood withdrawn from a vein was transferred directly to the nutrient solution without previous treatment. Thirty-six of this group of 206 cases (17.48 ± 8.1 per cent) gave positive results for *Schizos. hominis*; 87 of the cases belonged to the local type (pityriasis capitis) and yielded positive results in 8 instances

(9.19 ± 29.4 per cent), 103 cases belonged to the generalized type and yielded positive results in 23 instances (22.33 ± 12.42 per cent) and 16 cases of the schizosaccharomykid group (pityriasis rosea) showed 5 positive cultures (31.25 ± 34.77 per cent).

Schizos. hominis may appear in the primary blood culture in extremely small forms which, as the indispensable condition of their identification, call for being allowed "the benefit of new cultural responses" (Umzüchtung"), i. e., subculturing. As a single definite cause of the difficulties in obtaining the "cultural response" of *Schizos. hominis* from the blood stream, one must consider the inhibitive action of human total blood or serum on growth.

On 8 per cent dextrose agar the blood cultures of *Schizos. hominis* differ widely from the cutaneous cultures macroscopically and microscopically (figs. 6, 7, 8 and 9). Two types of *Schizos. hominis* can therefore be distinguished: (1) the skin type and (2) the blood type. The features of the blood type are lost once for all with the increase in the number of the agar passages, but still far more rapidly when the blood strain is carried through several broth generations. Thus far, attempts to obtain a reversal of the "skin type" of *Schizos. hominis* to the "blood type" have proved failures both in vitro and by inoculation of animals.

Once cultural response is forced on the blood strain of *Schizos. hominis* on 5 per cent dextrose broth (at p_H 7.2), successive subcultures offer no difficulties. On the contrary, it is hard to transplant the blood strain from the primary blood broth culture to solid nutrient mediums. The only medium suitable for the first transfer is my 8 per cent dextrose agar.

INDIRECT BLOOD CULTURES (CANTHARIDIN CULTURES)

The use of cantharides plaster for producing vesicles on the integument with a view to carrying out physical, cytologic, chemical or parasitologic tests with their contents is very old. Cantharidin blisters especially were early resorted to for demonstrating parasites in the blood stream.

It is to Urbach in Vienna that I am indebted for using the cantharidin method in research work on *Schizos. hominis*. The technic that I am using is as follows:

Cantharides plasters, 2 or 3 sq. cm. in size, to the edges of which narrow strips of adhesive plaster are attached for fixation, are placed on three or more areas of sound skin or over efflorescences. The vesicant is allowed to remain for twenty-four hours, by which time a content of from 3 to 5 cc. has collected. The content of the vesicles is then inoculated by sterile syringes on my 5 per cent dextrose broth (p_H 7.2). The cultures are positive for *Schizos. hominis* at the latest in forty-eight hours at 27 C.

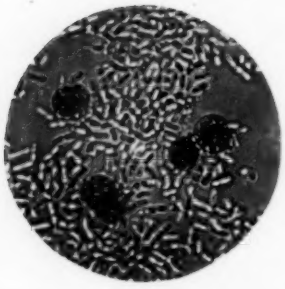

Fig. 6.—Schizos. hominis from a direct primary blood culture in pityriasis rosea of Gibert; eight day old vegetation of the sediment in 5 per cent dextrose broth at 27 C. Rodlike (blood type) parasites with some faded red blood corpuscles are visible. From a permanent specimen stained by the May-Grünwald method. Zeiss Phoku: 1/12 oil immersion, + H6, 2×.

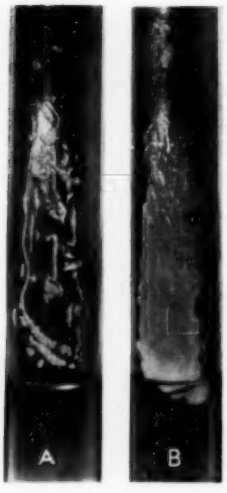

Fig. 7

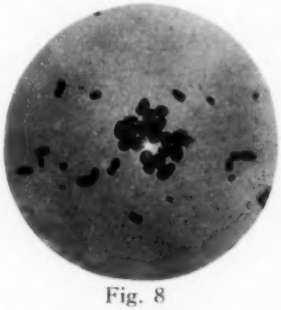

Fig. 8

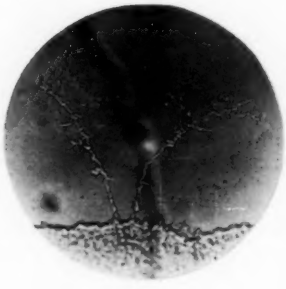

Fig. 9

Fig. 7.—(*a*) blood culture and (*b*) skin culture of Schizos. hominis from a patient with a generalized form of mycosis. The cultures were grown on 8 per cent dextrose agar, p_H 7.1 at 27 C.; they are fourteen days old and represent the fourth subculture. Note in the blood type (*a*) small, dry, not deliquescent colonies; in the skin type (*b*) a single coalescent film.

Fig. 8.—Schizos. hominis from a direct, primary blood culture in pityriasis rosea of Gibert (compare with fig. 6). Transfer from the primary blood broth culture to 8 per cent dextrose agar; five day old incubation at 27 C. Typical short round shapes of the parasite (skin type) are present. Zeiss Phoku: 1/12 oil immersion, + H6, 2×.

Fig. 9.—Schizos. hominis from a blood culture in a case of pityriasis rosea; grown on 8 per cent dextrose agar, p_H 7.1, at 27 C.; five weeks old; fourth agar subculture. "Horizontal marginal prolongation" is seen. Photomicrograph through the glass wall of a test tube culture. Zeiss Phoku: obj. 40×, + H6, 2×.

By the cantharidin method in conjunction with the cultivation technic that I have devised, the number of the positive cultures of *Schizos. hominis* obtained from the blood stream increased in 279 cases to 66.55 ± 8.5 per cent, the growth of any micro-organism other than *Schizos. hominis* being entirely precluded. Furthermore, I succeeded in evidencing that the very vegetative forms of *Schizos. hominis* are contained in the cantharidin blisters, and that this parasite there undergoes reproduction, multiplication and enrichment to a large extent in as short a period as twenty-four hours. In smears secured from the contents of the blisters, similarly in blood smears stained by the May-Grünwald-Giemsa method, the parasite can always be found in pure cultures in variably large amounts, partly free in the serum and partly phagocytosed by microphages and macrophages. In addition, these smears are far superior to the culture procedures, in that they do not fail in those cases in which cultivation proves a complete failure for biologic reasons (phagocytosis, agglutination).

Smear methods now yield almost a 100 per cent incidence of *Schizos. hominis* in the blood stream independent of the presence or absence of pathologic processes on the integument. This fact is evidenced by the cultural response of *Schizos. hominis* and the definite enrichment of its growth in the very content of the cantharidin blisters.

Among all the dermatoses tested by means of the cantharidin method the results obtained in psoriasis vulgaris were most impressive. The 27 cases tested readily showed a 100 per cent incidence of *Schizos. hominis* in the blood stream. The cantharidin method therefore makes it possible to enter into a narrower discussion of the relations prevailing between *Schizos. hominis* and psoriasis vulgaris.

There can be no doubt, however, that there are a number of drugs which by virtue of their content of dermatotoxic, chemical agents similar to that of cantharidin will produce the same effect on the integument as does cantharidin. In other words, it is possible to produce blisters on the integument by these chemically still indefinite substances and to see vesicles appear due to their fortuitous action from without. *Schizos. hominis* can also be identified microscopically or culturally in the contents of the vesicles. During the summer of 1930, I observed two cases of extensive dermatitis caused by milfoil (*Achillea millefolium*). The affected portions of the skin exhibited a marked inflammation with vesicles and blisters the size of peas and hazelnuts, respectively. They healed, leaving a deep dark pigmentation, as is usually the case with cantharidin blisters. In both cases I was able to identify *Schizos. hominis* in magnificent vegetative forms in the stained smear of the blisters.

On the other hand, in two cases each of dermatitis herpetiformis and pemphigus vulgaris, four or five examinations of the contents of the blisters at various intervals gave entirely negative results for *Schizos. hominis* both microscopically and culturally, although the blood of these patients was otherwise postive for the parasite.

One should never slight the fundamental knowledge that there is a great difference in the contents of blisters, according to whether they have an exterior cause, being produced by a toxic agent, or an interior cause, being produced by mechanisms thus far hardly known.

CENTRIFUGATION METHOD (CITRATE METHOD)

If collected in a definite citrate solution, blood loses its bactericidal power completely in regard to *Schizos. hominis*, and no doubt also in regard to other micro-organisms.

The composition of the citrated solution is as follows:

	Gm.
Sodium citrate	0.6
Sodium chloride	0.9
Distilled water to	100.0

Technic.—Ten cubic centimeters of the citrate solution is poured into a test tube and steamed (in Koch's steam sterilizer) for half an hour. Then 10 cc. of venous blood is added to this sterile solution, whereupon the mixture is centrifugated directly in sterile centrifuge tubes. Total centrifugation requires a rate of 4,000 revolutions a minute for half an hour. It is then easy to differentiate three portions of the fluid: a supernatant, clear straw-colored column of liquid, a deep dark column of red blood corpuscles at the bottom and, between both of these portions, at the border a whitish-gray stratum of leukocytes partly mucilaginous and partly tough.

In this stratum of leukocytes *Schizos. hominis* is found free between the cells or phagocytosed by macrophages and microphages. If this stratum of leukocytes is transferred to my 5 per cent dextrose broth in more or less copious amounts, depending on the content of germs, determined microscopically, the culture is promptly positive, for the most part, at 27 C.

The citrate method is of paramount importance, and, owing to the exactness of its prompt results, surpasses not only the capricious and difficult direct method, but the exceedingly delicate indirect method of identifying *Schizos. hominis* in the blood stream.

The direct method proves the amount of *Schizos. hominus*, as identified in the blood stream, to be less by a multiple of its own (owing to the existing bactericidal power of the total blood); the indirect method, on the contrary, shows it to be larger by a multiple of its own (owing to enrichment by the multiplication of the germs in the

cantharidin blister). The citrate method, alone, is apt to indicate the true content of *Schizos. hominis* in the blood stream, at the moment the blood is withdrawn. If the citrated blood is allowed to stand for several days, an unhoped for increase in the number of *Schizos. hominis* occurs. This event can frequently be recognized with the naked eye from the progress of the more or less intense hemolysis. When series of experiments are carried out, therefore, in order to obtain dependable values it is necessary to indicate exactly when the blood was withdrawn, i. e., the moment of the test, and the temperature.

The citrate method has enabled me to be the first to demonstrate the presence of *Schizos. hominis* in the venous blood of the umbilical cord, thereby proving that *Schizos. hominis* is transmitted transplacentally from the mother to the fetus.

COMMENT

Investigations into the etiologic significance of *Schizos. hominis* concern first and foremost its mycology and bacteriology.

The surface of the integument affords a puzzling multiplicity of micro-organisms in the morbid products of the erythematosquamous dermatoses mentioned in the beginning of this paper. The greater the personal hygiene of the patient, however, the greater is the number of *Schizos. hominis*. While the identification of *Schizos. hominis* from the scalp—this principal breeding ground of promiscuous micro-organisms—was successful in dandruff cultures in 27.5 ± 0.6 per cent of the cases, the percentage of cultures started with a view to demonstrating *Schizos. hominis* in scaly masses of corporeal surfaces covered and not treated prior to the mycologic researches was 50.0 ± 6.12 in my 600 cases.

The identification of *Schizos. hominis* by cultures of scales from lesions of the skin can succeed only in a relatively small percentage of cases (28.02 ± 3.39 per cent of 1,560 cases), because this is the only way to detect those individuals of the parasite which migrate out from the vascular system and, crossing the derma and epidermis, emerge on the surface of the skin. With this change the metamorphosis of *Schizos. hominis* from the "blood type" into the "skin type" occurs.

From the parasitology of the deep structures, i. e., from mycologic-bacteriologic tests of the closed efflorescences and the blood stream, it is obvious that among the multiplicity of micro-organisms revealed by the surface parasitology *Schizos. hominis* alone can make a claim to etiologic significance in the dermatoses in question.

By the identification of *Schizos. hominis* in the venous blood of the umbilical cord in 250 cases, the chain of evidence has been closed to

such an extent as to allow me to lay down as a fundamental tenet that *Schizos. hominis* is a constant endoparasite of *Homo sapiens*. At the same time, this is the most basic knowledge derived from the whole of the mycologicbacteriologic researches which show the correlation between micro-organism (*Schizos. hominis*) and macro-organism (*Homo sapiens*) to be of unsuspected complexity. This correlation is subject to the law of the unstable equilibrium as exteriorized by the fact that clinical latence gives place to the florid manifestation of disease and vice versa.

SUMMARY

Thus far, the following erythematosquamous dermatoses have been recognized as belonging under schizosaccharomycosis: (1) seborrheic eczema of Unna, with all its variants; (2) sycosis vulgaris sive coccogenes; (3) seborrheic rosacea; (4) pityriasis rosea of Gibert; (5) pompholyx of Hutchinson (dyshidrosis of Tilbury Fox or epidermophytid); (6) the so-called constitutional infantile eczema, and (7) erythrodermia desquamativa of Leiner.

1. By stained smears, without cultivation, *Schizos. hominis* can be identified in its vegetative forms from closed efflorescences (vesicles, nodules).

2. *Schizos. hominis* can be identified from the morbid products (scales, pus, hair) of the corresponding dermatoses by cultures of scale from the skin in an average mean total of 28.02 ± 3.39 per cent of the large series of experiments covering 1,560 cases. By this method it is possible to identify only such individuals of the parasite as have left the vascular system and, wandering through the derma and epidermis, have settled on the surface of the skin.

3. Through direct blood cultures *Schizos. hominis* was identified in 17.48 ± 8.1 per cent of 206 cases. This low percentage of positive cultures is due to the high inhibitive action that human total blood exerts on its growth.

4. Through indirect blood cultures (the cantharidin method) the parasite could be identified in 66.55 ± 8.5 per cent of 279 cases. If the contents of the blisters are examined microscopically and evaluated, there is found to be an increase in the positive cultures to approximately 100 per cent, since the parasite there multiplies conspicuously in as short a space of time as twenty-four hours.

5. The degree to which the blood stream is flooded with *Schizos. hominis* at a given moment can be shown only by centrifugation. By this procedure *Schizos. hominis* can be identified in the blood stream in its vegetative forms and also phagocytosed by microphages and

macrophages. In addition, this procedure has made possible the identification of *Schizos. hominis* in the venous blood of the umbilical cord.

While *Schizos. hominis* occurred in pure culture in only part of the cases in which scales were tested (from the scalp, 27.5 ± 7.06 per cent; from the skin of the body, 50 ± 6.12 per cent) and was there associated with nonpathogenic and also pathogenic germs in the blood stream it was always isolated and not associated with other microorganisms.

Schizos. hominis is a constant endoparasite of *Homo sapiens,* and the dermatoses caused by it are merely "projections" of this endoparasitism on the outer surface of the integument.

PROLIFERATIVE GINGIVITIS OF PREGNANCY

REPORT OF CASES *

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A few years ago, I drew attention to a type of inflammatory growth occurring on the gums of pregnant women for which the name "proliferative gingivitis of pregnancy" was proposed.[1] To my knowledge the condition has not been reported in dermatologic literature. In the past year several similar cases, some of which form the basis for this report, have been observed. For purposes of comparison I include the description of a case of giant cell sarcoma occurring in the mouth of a pregnant woman.

The literature on this subject, having been reviewed elsewhere,[1] need not be considered here.

A clear idea of this condition can best be given by a brief description of a case that was followed through three pregnancies.

CASE 1.—A Negress, 18 years of age, who was in the second month of her first pregnancy, noted that the gum between the right upper cuspid and first bicuspid was enlarging. It grew gradually downward over the buccal aspect of the teeth. Soon thereafter, the gum tissue on the lingual side between the same teeth began to proliferate. During the fourth month of pregnancy the tissue between the upper first and second molars enlarged, extending up the palate for a short distance and also down over the palatal aspects of the teeth.

When I saw her the patient was a well developed and well nourished woman in the sixth month of gestation. Physical examination, including a urinalysis and the Wassermann test, yielded essentially negative results, with the exception of the condition of the mouth. In the mouth in the areas mentioned could be observed reddish-purple, cauliflower-like masses, under the margins of which a probe could be inserted; these growths were seen to be springing from a stalk having its origin in the gum tissue between the teeth covered by the growths. The anterior labial growth was 1.5 cm., and the posterior palatal one 1.6 cm., in diameter. They both bled freely on the slightest trauma. Elsewhere in the mouth there was a generalized proliferation of the gingival tissue, forming smaller masses similar to the larger ones (fig. 1). Evidences of poor dental hygiene were present, such as deposits of calculus over the necks of many teeth.

At this time the growth in the region of the right cuspid was excised and the base curetted and cauterized with silver nitrate. Several of the smaller adja-

* Submitted for publication, March 7, 1931.

* From the Stuyvesant Square Hospital, formerly the New York Skin and Cancer Hospital, services of Drs. Charles Mallory Williams, Paul E. Bechet and Eugene F. Traub.

1. Monash, Samuel: Proliferative Gingivitis of Pregnancy, Surg. Gynec. & Obst. **42**:794, 1926.

cent interdental growths were also removed. Microscopically, no difference could be observed between the tissues examined, showing that essentially the same process was at work throughout the mouth. In all there were marked hypertrophy and edema of the mucosa, with here and there considerable downgrowth

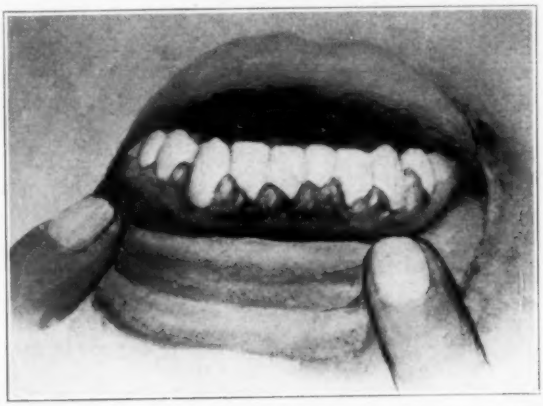

Fig. 1 (case 1).—Labial aspect of lower gums showing generalized gingivitis.

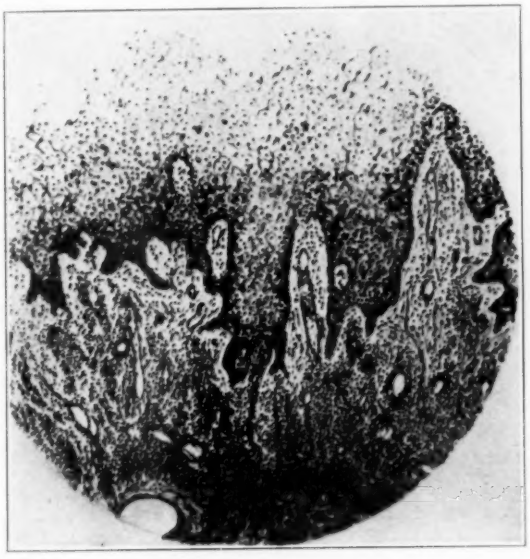

Fig. 2 (case 1).—Drawing of a portion of a section of the growth in the region of the right cuspid.

of the epithelium. The submucosa was edematous and markedly infiltrated with lymphocytes, leukocytes, plasma cells and fibroblasts. The diagnosis was chronic inflammation (fig. 2).

Throughout the remainder of the pregnancy there was no recurrence at the sites of the excised growths, but considerable enlargement of the palatal one, which had not been treated. The patient gave birth at term to a normal child.

Six months later, the marked gingivitis and hyperemia that had been present when the patient was first observed had practically disappeared, and there were no growths except the large one between the upper left first and second molars on their palatal aspect. It had diminished considerably in size, being now slightly less than 1 cm. in diameter, compared with almost 2 cm. in diameter at the birth of the child.

During the next year the patient again became pregnant. This, her second pregnancy, was terminated within a few months by a spontaneous abortion. Eight months later, during the first month of her third pregnancy, the palatal growth was much larger than at the previous examination, being now 2.5 cm. in long diameter from before backward and 1.2 cm. from above downward. It continued to increase in size during the period of gestation, and in the ninth month was 3.5 cm. long by 2 cm. wide, extending over the palatal aspects of the first, second and third molars and back over the tuberosity. Throughout the mouth there was a gingivitis almost identical with that observed during the first pregnancy, with here and there smallish proliferations of tissue and a larger one, 0.5 cm. in diameter, arising from the buccal interdental space between the upper right second bicuspid and first molar. There was no recurrence at the site of removal of the large growth present in the first pregnancy between the upper right cuspid and first bicuspid.

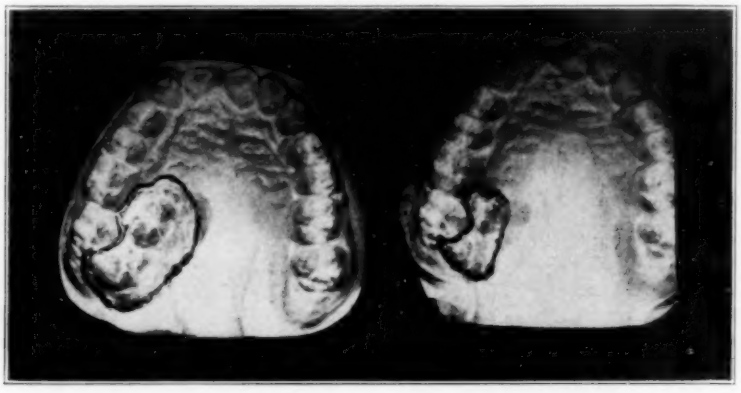

Fig. 3 (case 1).—Casts showing palatal growth two days before and six weeks after delivery of the child.

The patient then gave birth to a normal child, and immediately thereafter the growths began to diminish in size. Six weeks after delivery, with no treatment, the dimensions of the palatal growth were 2 cm. by 1 cm., as compared with 3.5 cm. by 2 cm. just before delivery and its volume was only one third as great.

SUMMARY OF CHARACTERISTICS OF PROLIFERATIVE GINGIVITIS OF PREGNANCY

Case 1 shows clearly the main features of this condition. It is characterized by the appearance of interdental growths of the gum tissue, reddish-purple cauliflower-like masses, in a mouth showing evidences of poor dental hygiene. The growths begin to form during pregnancy,

tend to increase in size during that period, regress after delivery, are composed of chronic inflammatory tissue, and are, as a rule, part and parcel of a generalized gingivitis.

The condition is by no means rare. In the previous communication, histories were given of six cases observed. During the past year, of one hundred and sixty-eight pregnant clinical patients examined, fifteen had definite, but mild, proliferative gingival changes and nine, or 5 per cent, showed a pronounced grade of proliferative gingivitis with the formation of growths. I shall limit myself to describing only three of the latter cases, as they are all somewhat similar.

Case 2.—A. S., white, aged 35, was in the eighth month of her third pregnancy. She had had no similar trouble before. The general physical examination, urinalysis and Wassermann test showed normal conditions. In the fourth month of pregnancy the patient had noted bleeding on brushing the gums and gradually increasing size of the gum tissue between the lower central incisors and between the lower left lateral incisor and cuspid. The interdental growths were about 4 mm. in diameter, stood away from the teeth in their superior portion, and were edematous and purplish red, bleeding on the slightest trauma. There was mild gingivitis in the region of the right upper incisor and cuspid buccally. The mouth in general showed evidences of poor dental hygiene.

When the patient was seen two months after the delivery of her child, the interdental proliferations had disappeared. Slight gingivitis was still present.

Case 3.—R. K., white, aged 38 noticed the beginning of the growth between the lower left lateral incisor and cuspid buccally during the third month of her second pregnancy. This had increased in size until the birth of her child; then it began to regress, but did not disappear completely. Two months later, it was removed at another clinic, but recurred in one month. At the time of observation there was a pedunculated, dull red mass, 5 by 7 mm. in size, between the lower left lateral incisor and cuspid buccally. There was mild gingivitis present throughout most of the mouth, with considerable deposits of tartar at the necks of many of the teeth.

The growth was removed by electrocoagulation with thorough destruction of the base. Microscopically it showed edema of the mucosa and submucosa, lengthening and widening of the rete pegs, dilatation of the blood vessels and a diffuse infiltration composed mostly of lymphocytes, in short, a picture of chronic inflammation.

Case 4.—A. de G., white, aged 25, was seen in the seventh month of her first pregnancy. She had noted bleeding gums, beginning in the fourth month of gestation, and a progressively increasing swollen appearance of the gum tissue in the region of the lower left molar. The past history and the results of the general physical examination, including a urinalysis and the Wassermann test, were essentially negative. There were present in the lower left molar region buccally interdental proliferations of gum tissue, from 3 to 4 mm. in diameter, similar in character to those already described. Labially, about the lower anterior teeth, there was gingivitis, with an erythematous area extending for a distance of 2 mm. from the gingival margin. Lingually, there was a slight gingivitis throughout.

When the patient was seen one month after the termination of her pregnancy, the masses between the molar teeth had completely disappeared and the anterior erythematous area was no longer present.

It must not be thought, however, that every pedunculated growth on the gums that increases in size during pregnancy belongs in this class. Case 5, which I am reporting with the permission of Dr. Joseph Schroff, oral surgeon at Mount Sinai Hospital, is interesting from this standpoint.

CASE 5.—Mrs. A. S., white, aged 35, multiparous, was first observed in the seventh month of gestation. Two weeks before, she had noted the beginning of a rapidly increasing growth on the outer aspect of the gum over the central incisors. The growth bled occasionally, but caused no pain. The rapid increase in the size of the tumor formed a striking contrast to the gradual proliferation of gum tissue over a period of months observed in proliferative gingivitis.

Examination revealed a dark purplish-red pedunculated growth, 12 mm. wide by 7 mm. deep, bilobed in appearance on its external surface and of moderately

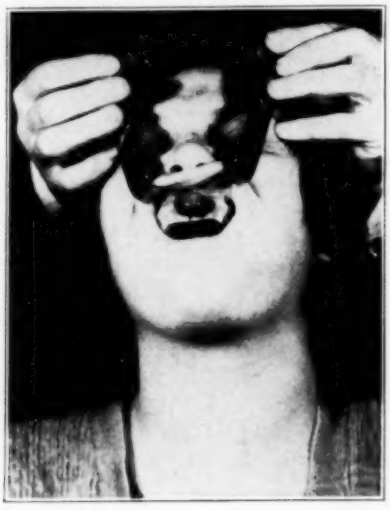

Fig. 4 (case 5).—Giant cell sarcoma over incisor teeth.

firm consistency. The edges of the growth did not show the edematous, multilobular, cauliflower-like arrangement usually seen in the growths of proliferative gingivitis during their period of formation. Nor was the generalized gingivitis so often seen in the latter condition present. An impression of the growth was taken at this time. Two months later, just before the birth of the child, the growth was much larger, being 21 mm. wide by 12 mm. deep, and pushed the upper lip upward and outward. Figure 4 shows the growth at this time. Four weeks after delivery of a normal child, the growth was larger than ever, measuring 28 mm. by 17 mm., and had loosened the left central incisor. It was removed by Dr. Schroff and was shown by microscopic examination to be a giant cell sarcoma.

All giant cell sarcomas of the gums do not, however, continue to increase in size after the termination of pregnancy. Perthes,[2] reported

2. Perthes, Georg: Die Verletzungen und Krankheiten der Kiefer, Deutsche Chir. **33**A:145, 1907.

a case that may serve as an example. The patient, 25 years of age, for five years had had a pea-sized growth on the gum of the upper jaw, exactly in the median line. About three months after she had become pregnant for the first time, she noted that the growth was increasing in size. When Perthes saw her two months later, it was as large as a hazelnut. During the sixth month of gestation it was removed and the base cauterized. Microscopic examination showed it to be a giant cell sarcoma. Two weeks after its removal, it recurred and, at the birth of the child about three months later, was so large that speech and closure of the mouth were difficult. Three months after delivery of the child, the growth had shrunk spontaneously to the size of a lentil.

IS THERE A GINGIVITIS PECULIAR TO PREGNANCY?

This question whether there is a gingivitis peculiar to pregnancy has been discussed elsewhere, and the conclusion was reached that there is not. Inflammatory changes identical with those described are occasionally seen in other than pregnant women and even in men as the result of long-continued irritation of the gums. To all of these changes the term "proliferative gingivitis" is applicable; it directs attention to the inflammatory nature of such growths and thus serves to distinguish them from true tumors. For the proliferative gingival changes occurring during pregnancy, it is advisable to use the term "proliferative gingivitis of pregnancy," as it immediately brings to mind the remarkable connection between such changes and pregnancy; namely, that the proliferation usually begins during pregnancy, increases rapidly in that period and regresses after its termination. The rapid evolution of the inflammatory process during the period of gestation appears to me to be due to an exaggerated inflammatory response in some women at that time to irritants that normally provoke only a moderate reaction.

TREATMENT

If the mouths of all pregnant women were properly taken care of before the advent of pregnancy, there would be none or few cases of proliferative gingivitis. Such care should consist of a thorough cleaning and scaling of the teeth, the removal of all greatly decayed teeth and poorly fitting dental restorations, the correction of abnormalities of occlusion, a course of massage of the gums and instruction as to the proper methods of using the tooth brush.

Should the gingivitis be observed during pregnancy, immediate treatment occasionally results in the disappearance of small masses even before the termination of the pregnancy. If they do not disappear, they need not be removed unless they interfere with the comfort of the patient or her ability to masticate. After delivery of the child, because

of the rapid diminution in the size of the masses, they can be more easily dealt with, and the tendency toward a recurrence is not so great. No teeth need be sacrificed, but the base of the growth must be thoroughly removed.

SUMMARY AND CONCLUSIONS

1. Several cases are reported in which growths were observed on the gums of pregnant women. They began to form at a variable time during pregnancy, usually during the earlier months, increased in size unless treated, and spontaneously diminished or disappeared after delivery of the child.

2. The growth is usually part of a generalized gingivitis and represents simply an exaggerated degree of the condition. The name "proliferative gingivitis of pregnancy" is proposed.

3. The growth is inflammatory in origin and should not be classed as a true tumor.

4. Prophylactic measures and treatment are discussed.

5. A case of giant cell sarcoma in the mouth of a pregnant woman is described.

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LEUKEMIA CUTIS

REPORT OF A CASE *

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Unusual symptoms are seen in the leukemias and anemias of childhood. The following case differs markedly from the pictures of classic leukemia of the skin.

REPORT OF A CASE

History.—B. C., a white girl, aged 2 years, whose parents were healthy, had whooping cough at the age of 1 year, after which she suffered from frequent attacks of bronchitis.

Her mother stated that shortly after birth she noticed on the back of the infant's neck two small lumps which became larger, until at 1 year of age each had attained the size of a dime. On Dec. 15, 1928, a diagnosis of nevus was made and excision was advised. The lesions were hard, freely movable, painless and flat, like buttons in the skin, and the color of a bruise. There was no palpable adenopathy, and the child appeared in good health, though everybody remarked on her "pasty" color. She was not seen again until July, 1929.

Examination.—On July 6, 1929, the child presented a healthy appearance. She was well nourished, alert and seemed normal except for the pale, waxlike skin. The spleen was not palpable, and the liver was not enlarged. The left tonsil was injected and enlarged.

On the right posterior side of the neck were two discrete, smooth surfaced nodules, each the size of a hazelnut and protruding dome-fashion above the level of the skin. The lesions were hard, freely movable, had no connection with the underlying tissue and varied in color from brown to purple.

The Wassermann reaction of the blood was negative. A roentgenogram of the lungs did not reveal any enlarged lymph glands, but there was evidence of some infiltration along both the upper lobes.

Course.—Three months later, two button-like, slightly infiltrated, dime-sized plaques, resembling bruised spots, appeared on the abdomen. At that time two small lumps reappeared in the postoperative scar on the neck. These four lesions almost disappeared from time to time. During October and November, the patient received deep roentgen therapy, without apparent benefit. The lymph glands and spleen were not palpable or enlarged throughout this period.

In November the child became acutely ill with a severe sore throat, extreme weakness and a high fever. A suppurating discharge from the left ear stopped after a few days. It is interesting to note that following this illness the child's general condition seemed to improve and that the lesions of the skin grew smaller.

* Submitted for publication, Feb. 3, 1931.

The parents then took the child to a warm climate, where she died in February, 1930. The father described the child's condition previous to death as pitiable, for she was apathetic, weak and without interest in her surroundings. The skin looked like wax and was covered with many boils which gave off a foul odor. Autopsy was not performed.

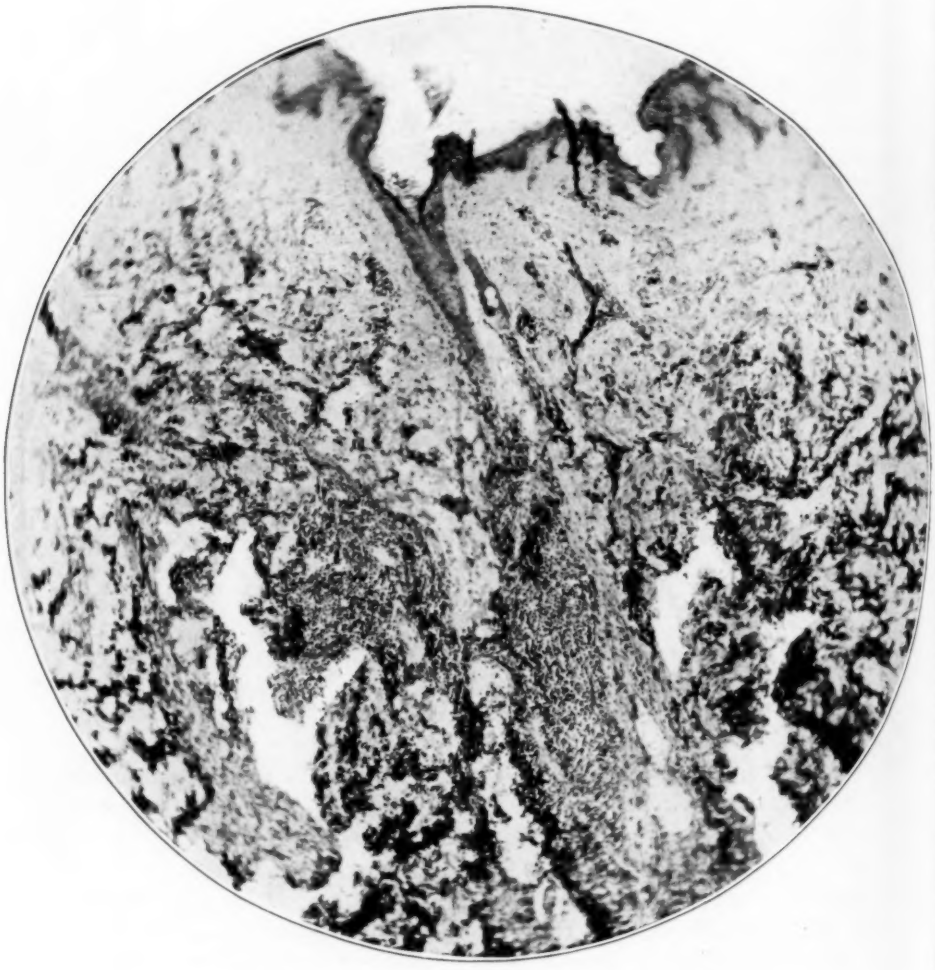

Fig. 1.—Widespread infiltration of lymphoid cells.

Examination of the Blood.—Complete studies of the blood were made at frequent intervals. Dr. Jaffé reported that about one third of the lymphocytes were large and of lymphoblastic type. Many others were not so large, but slightly larger than the normal lymphocyte. The nuclei were lightly stained. The oxydase reaction was negative.

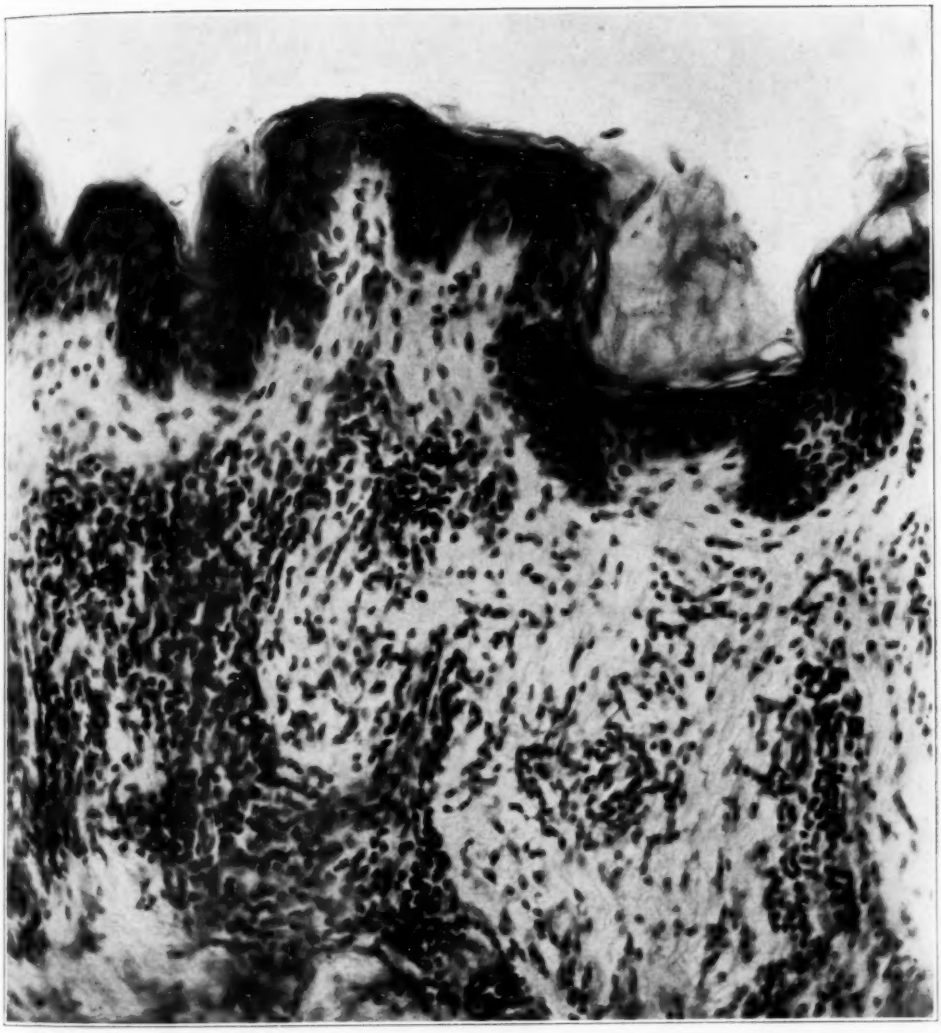

Fig. 2.—Localization of lymphoid cells around the capillaries and sweat glands.

Histologic Examination.—On July 6, 1929, both nodes on the neck were excised and examined by Dr. R. H. Jaffé, who reported that the epidermis was normal, but that the cutis was everywhere invaded by actively proliferating lymphatic tissue (fig. 1). This infiltration was very dense in the subcutaneous fat tissue. Under high magnification, the character of the lymphoid cells, with their tendency to groups themselves, was clearly seen around the capillaries and glandular elements (fig. 2).

Summary of Examination of the Blood

	Hemoglobin, per Cent	Red Blood Cells (Million)	White Blood Cells	Polymorphonuclear Leukocytes	Lymphocytes	Monocytes	Eosinophils	Myeloblasts
August 5.....	80	4.72	14,300	18	75	5	2	0
August 12.....	..	....	10,450	28	66	4	2	0
November 4 (after acute illness)....	74	5.60	20,200	34	60	6	0	0
November 8.....	70	4.50	6,100	35	62	3	0	0
November 25.....	70	4.50	5,000	10	88	2	0	0
December 2.....	..	....	8,800	19	77	4	0	0
December 9.....	70	4.80	7,400	8	92	0	0	0
December 12.....	70	4.05	5,100	2	98	0	0	0
December 16.....	65	3.86	3,800	3	95	0	0	0

COMMENT

Poynton and Moncrieff [1] recently described three similar cases, in which the enlargement of the axillary, inguinal and epitrochlear glands did not occur until late in the course of the disease. There was likewise a mononuclear response without leukocytosis in the blood, and no granules were seen with the oxydase stain. The salient point of difference in this case lies in the absence of arthritic symptoms.

Since Biesiadecki first described a case of leukemia cutis in 1876, there have been only a few reports in the literature on lymphatic leukemia of the skin which were supported by histologic evidence.

Many of the lymphoid cells seen in the blood smears of this patient were large, resembling lymphoblasts, whereas many were larger than the normal lymphocyte. Heiberg [2] discussed the finer cytology of the cells seen in lymphatic leukemia, regarding these lymphoid cells as hyperplastic forms of the normal lymphocyte, thus coinciding with Paltauf's classification of the leukemias. But in our case, about one third of the lymphoid cells were blastomatous in type.

SUMMARY

An atypical case of lymphatic leukemia with cutaneous lesions in a young child is described.

1. Poynton, F. J., and Moncrieff, A.: Lancet **2**:812 (Oct. 19) 1929.
2. Heiberg, K. A.: Virchows Arch. f. path. Anat. **279**:58, 1931.

SYPHILITIC BURSOPATHY OF VERNEUIL*

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AND
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In 1868 and 1873, Verneuil [1] first directed attention to the occasional tendency of syphilis to involve bursae either as the sole evidence of the disease or as part of the clinical ensemble. Since the meager literature on syphilitic bursopathy is out of proportion to its relative frequency and nonrecognition, two recent examples of this condition have prompted a résumé of previous reports and a review of the chief clinical features.

REVIEW OF THE LITERATURE

It is remarkable that the four original cases of syphilitic bursopathy reported by Verneuil involved the extensor tendons of the hand distal to the annular ligament, for, with a few notable exceptions, all subsequently reported cases have involved the bursae about the elbows and knees, particularly the latter location. In 1876, the elder Keyes collected fourteen cases, which were subsequently incorporated in Churchman's [2] paper which appeared in 1909.

Churchman analyzed twenty-seven established cases, including one of his own, and wrote a masterly article dealing with every phase of the condition. In 1924, Lane [3] collected five additional cases and added two reports of his own, bringing the total number of cases in the literature at that time to thirty-four. Except for a questionable case reported by Cabot [4] and an unpublished case of Keidel and Moore's, a plate of which appears in Stokes' "Modern Clinical Syphilology," [5]

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* Submitted for publication, March 7, 1931.

* From the Department of Dermatology and Syphilology of the School of Medicine, and the Syphilis Clinic of the University Hospital, University of Pennsylvania, John H. Stokes, M.D., Director.

1. Verneuil, A.: Hygroma du dos de la main dans la syphilis secondaire, Gaz. hebd. de méd. **5**:609, 1868; Lésions syphilitiques tertiaires des bourses sereuses souscutanées et tendineuses-hydrarthroses tertiaires, ibid. **10**:22, 1873.

2. Churchman, J. W.: Luetic Bursopathy of Verneuil, Am. J. M. Sc. **138**: 271, 1909.

3. Lane, J. E.: Syphilitic Bursitis, J. A. M. A. **82**:852 (March 15) 1924.

4. Cabot, R.: Luetic Bursitis, Boston M. & S. J. **194**:501, 1926.

5. Stokes, J. H.: Modern Clinical Syphilology, Philadelphia, W. B. Saunders Company, 1926.

no recent articles have appeared on syphilitic bursopathy. The two cases here reported bring the entire number in the literature to thirty-eight.

REPORT OF CASES

CASE 1.—R. D., a white woman, aged 51, was first seen on April 4, 1929. She had acquired syphilis twenty years previously and had been treated with mercury pills by mouth for one year.

On admission to the hospital, the patient presented many late cutaneous syphilids, the duration of which varied from a few weeks to several years. Most of the lesions were of the classic, dull red, indurated, polycylic type, involving the flexor and extensor surfaces of the right forearm, the dorsum of the left hand, the right buttock and the medial surface of the middle third of the right thigh.

General physical examination showed an enlarged liver, 4 cm. below the right costal margin, a palpable spleen, a moderately enlarged heart with no clinical evi-

Fig. 1 (case 1).—Photograph taken in February, 1930, showing the depressed dimpled scar on the left knee and the active lesions on the right.

dence of aortic disease and a blood pressure of 172 systolic and 70 diastolic. Neurologic examination gave negative results.

The lesions on the knees require special mention. Just below and superficial to the lower margin of the patellae were hyperpigmented, indurated plaques with central ulceration. The ulcers, two on the right knee and one on the left, were punched-out, and varied in diameter from 0.5 to 1.5 cm. There was a small amount of seropurulent discharge, and the bases of the ulcers were covered with pale, indolent granulations.

The results of the Kolmer-Wassermann as well as those of the Kahn, Hinton and Kline precipitation tests on the blood serum were strongly positive. A roentgenogram of the knees did not show involvement of bone or periosteum.

A course of intramuscular injections of potassium bismuth tartrate was started, but after two weekly injections of 0.05 Gm. and 0.1 Gm., treatment lapsed until May 29, 1929. At that time all the lesions showed decided improvement. On September 24, the patient returned after another lapse from treatment, having received but two additional injections of bismuth since her visit in May. The right knee still showed central ulceration, but the ulcer on the left knee had healed.

On Feb. 20, 1930, she again returned after a lapse from treatment of approximately five months. The ulcers on the right knee were about one-third larger than when last seen, and the induration was more marked. The left knee showed a definitely depressed, dimpled scar (fig. 1).

Subjectively, the patient complained of a moderate amount of pain in the right knee, but motion was not limited. Under treatment with potassium bismuth tartrate, 0.2 Gm. intramuscularly at weekly intervals, and potassium iodide by mouth, the lesions completely involuted within a period of six weeks.

CASE 2.—M. W., a colored widow, when seen in March, 1930, complained of swelling, ulceration and stiffness of both knees of three months' duration. The

Fig. 2 (case 2).—Photograph showing the ulcerated lesions on the right knee and the infiltrated swelling of the left.

only outstanding fact in her past medical history was a fall from a ladder, 6 feet (183 cm.) high, two years prior to observation, at which time the knees sustained the brunt of the impact. Her only child had died of "lung trouble" at the age of 15. There had been no miscarriages.

Physical examination disclosed signs of a moderately advanced myocarditis with slight hypertrophy, a systolic apical murmur and a definitely palpable liver two fingerbreadths below the right costal border. The blood pressure was 130 systolic and 70 diastolic. Neurologic examination gave negative results.

Overlying and inferior to the lower border of each patella was a hyperpigmented, brawny infiltration, which on the right side had broken down to form two irregular, sluggishly granulating ulcers, from 1 to 4 cm. in diameter. The larger

inferior ulcer extended to a depth of 2 cm. and had thickened, undermined edges and sloping sides, with necrotic, purulent tissue at the base. The smaller, superior ulcer was definitely punched-out, with an indolent, granulating base. To the right of this ulcer was a sluggish linear wound at the site of operative intervention for "abscess," the diagnosis that had been reached prior to our observation of the patient (fig. 2). The left knee below the patella presented a prominent infiltrated swelling best seen on lateral inspection (fig. 3). There was no tenderness, fluctuation or ulceration. Motion in the left knee joint was unrestricted, but the right knee showed moderate restriction in flexion.

The roentgenographic report read: "There is no evidence of bone change except a very slight amount of lipping on the upper posterior aspect of the patellae which is slight compared with the average amount in a patient of this age." The Kolmer-Wassermann and the Kahn tests on the blood gave strongly positive results.

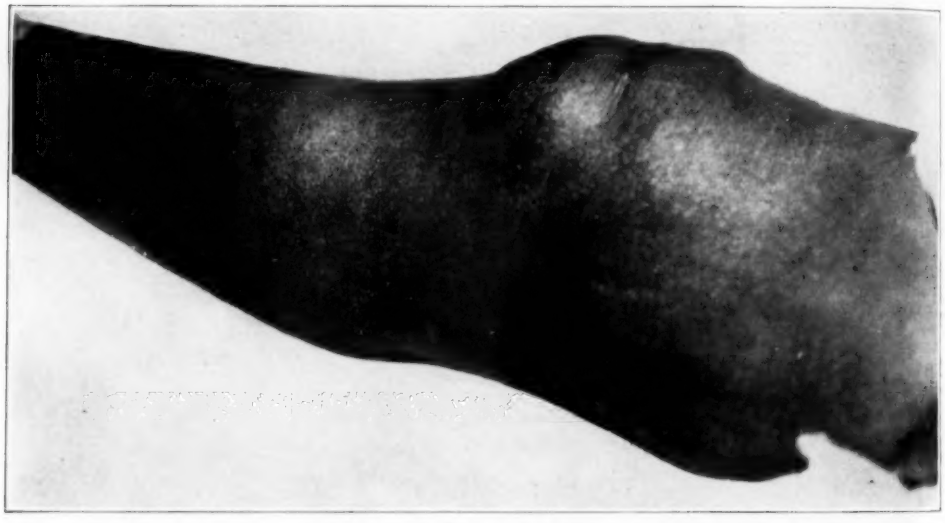

Fig. 3 (case 2).—Lateral view of the left knee (compare with figure 2).

The patient was given small doses of potassium bismuth tartrate intramuscularly and rather large doses of potassium iodide by mouth. Within six weeks, the ulcers completely healed, the infiltration and swelling subsided, and the pain and stiffness disappeared.

CLINICAL FEATURES

Churchman has written so exhaustively on the subject of Verneuil's bursopathy, including the exact anatomic relationships of the involved bursae as well as a detailed discussion of differential diagnosis, that it seems necessary for us merely to reemphasize the chief clinical features of the condition.

Syphilitic bursopathy affects particularly the prepatellar and subpatellar bursae and less frequently those at the joint of the elbow, the acromial process of the scapula and the extensor tendons to the fingers.

The condition may be unilateral or bilateral, is often symmetrical and rarely presents multiple involvement of the bursae.

The condition has been noted from the age of 13 to 64, and while occurring in both sexes, it is found preponderantly in women. Coues [6] reported a case of olecranon bursitis which appeared during the course of prenatal syphilis in a boy of 13, but with this exception all cases have occurred within a period of from a few months to ten or more years after the onset of an acquired syphilitic infection.

Approximately one third of the reported cases appear during the secondary stage of syphilis and, clinically, are characterized by chronic, persistent, tense swelling, with or without inflammatory signs over the affected bursae. The older writers spoke of this condition as "hygroma." Pathologically, there is hyperplasia of the connective tissue of the bursa with subsequent degeneration to form a yellowish, viscid, coagulable fluid.

Most of the cases occurring in association with early syphilis do not ulcerate and produce clinical pictures indistinguishable from bursopathies of other origin. Later in the course of a syphilitic infection, the more common gummatous bursopathy arises, which usually breaks down to form either deep, irregular ulcers or projecting, fungating, granulomatous masses.

Preceding trauma may be a conspicuous feature, but more than half the reported cases had a negative history in this respect. As Churchman wisely commented, however, in a condition so essentially indolent, patients may frequently fail to appreciate the significance of previous and often forgotten trauma. That the sites of the most frequent involvement are the regions most subject to traumatism is worthy of note when one interprets this fact in the light of the known effect of injury on the localization of syphilitic processes.

Pain is not a conspicuous feature in most of the recorded histories. It is rarely severe and, indeed, is absent in over one third of the patients. Stiffness and a moderate degree of functional disability occur in a few of the patients.

From a diagnostic standpoint the freedom of the adjacent joint from any clinical or roentgenographic evidence of involvement is of the utmost significance, for secondary involvement of bursae by extension from an underlying syphilitic process in the bone or joint is not unknown. A lateral view of the joint in question is essential for the exclusion of specific osteomyelitis as well as subperiosteal abscess.

From a practical standpoint the differential diagnosis can be reduced to four essentials: a suggestive localization and clinical appearance,

6. Coues, W. P.: Luetic Bursopathy of Verneuil, Boston M. & S. J. **173**:18, 1915.

a negative roentgen study, a positive Wassermann reaction and early response to antisyphilitic therapy. If all indolent, symmetrical swellings in proximity to joints were subjected to a serologic study alone, it is certain that a number of cases labeled chronic housemaid's knee, abscess and arthritis could be proved syphilitic, and some of the cases could be shown by further study to be Verneuil's bursopathy.

From the standpoint of therapy, gummatous bursopathy may be associated with various phases of late visceral syphilis; these should be identified by complete examination, and possible therapeutic shock from arsphenamines should be avoided by initiating treatment with mercury or bismuth in combination with the oral administration of iodides. Fortunately, the condition responds promptly and completely to this method of treatment. Churchman showed that even in the prearsphenamine era the average time for complete involution of the process under treatment with mercury and iodides by mouth was forty-six days.

CONCLUSION

1. Two additional cases of the syphilitic bursopathy of Verneuil are reported, bringing the present number of cases in the literature to thirty-eight. The prepatellar bursae were involved in each case, both patients being women with late syphilis.

2. The chief clinical features of the conditions are discussed, with special emphasis on the indolence and frequent symmetry of the process, the negative roentgenographic study, the positive serology and the early response to conservative antisyphilitic therapy.

3. In one of our patients the type of scar deserves emphasis. Unlike the usual thin, atrophic scar of a cutaneous ulcerating gumma, it was depressed, dimpled and adherent to the underlying tissue, and gave no suggestion of the configuration of the original gummatous ulcer.

DERMATITIS VENENATA DUE TO SHOE LEATHER

REPORT OF TWO CASES *

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The following two cases appear to be of sufficient importance to justify a short report.

CASE 1.—Mr. M. L., aged 54, Jewish, a tailor, who was seen for the first time on July 22, 1930, complained of severe itching of the ankles and dorsa of the feet and stated that an eruption had been present on these parts for the past two weeks. He had not applied medication.

On examination of the feet, a dermatitis, distributed in bands, varying from ½ to 1 inch (1.27 to 2.54 cm.) in width, encircled the ankles. A small, similar area was present near the midline on the dorsum of both feet (fig. 1). The affected skin was erythematous, with a moderate number of follicular papules scattered throughout. The surface was somewhat scaly. The margins were fairly well defined. Examination of the toes revealed maceration and scaling in the last two interdigits of both feet.

Inspection of the patient's shoes showed that the eruption coincided with a leather band around the upper, inner edge of the shoe. The remainder of the shoe was lined with canvas, with the exception of part of the top of the shoe which was not covered by the tongue. The latter area also coincided with the inflamed skin on the dorsa of the patient's feet. On being questioned, the patient stated that he had worn no other shoes during the past three months and he had not worn the shoes without socks. He said that though the shoes fitted perfectly, he had noticed that since wearing them the feet had been pruritic, especially at night, and at times, swollen. He had not experienced this trouble previous to wearing the shoes. He was aware that the feet had perspired more in the last three weeks than ever before. The shoes were tan, and the color had not been changed since the time of purchase. They were made by a well known and reputable manufacturer of shoes.

A strip of leather was sliced away from the suspected band of leather on the inside of one of the shoes and was applied to the anterior part of the patient's forearm,[1] being held in place by adhesive tape. Within forty-eight hours, a

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* From the Department of Dermatology and Syphilology, New York Post-Graduate Medical School and Hospital, Dr. George Miller MacKee, Director.

1. Jadassohn (Zur Kenntnis der medicamentösen Dermatosen, Vienna, Wilhelm Braumüller, 1896) first used the patch or contact test in investigating a dermatitis due to mercury. Markley (Arch. Dermat. & Syph. **2**:722 [Dec.] 1920) was probably the first in this country to thus prove the cause of a dermatitis. He investigated the case of a patient with an acute dermatitis of the face, neck, chest and the anterior surfaces of the forearms and cubital spaces. Suspecting that the eruption might have been due to the presence of a pet guinea-pig in the home, he applied some of the animal's hair in patches to various parts of the skin. Where the eruption had been present on the sides of the neck, a severe reaction developed after the hair had been applied for only four hours. When other areas of skin that had never been involved were tested negative results were obtained. The investigations and work of Highman (Arch. Dermat. & Syph. **9**:344 [March] 1924; **11**:303 [March] 1925), Bloch (Arch. Dermat. & Syph. **19**:175 [Feb.] 1929) and a score of other workers need not be reviewed here. Suffice it to say that many cases of eczema have been proved by actual contact reactions to be due to an external irritant.

definite, erythematous, somewhat scaly area, containing a few minute follicular papules, similar to the eruption on the feet and ankles, was present on the skin over which the leather had been applied (fig. 2). The patient complained of severe itching in this area. Similar strips of leather were applied to the skins of three other subjects without producing an inflammatory change after forty-eight hours. These tests showed that the patient's skin was hypersensitive to the leather in his

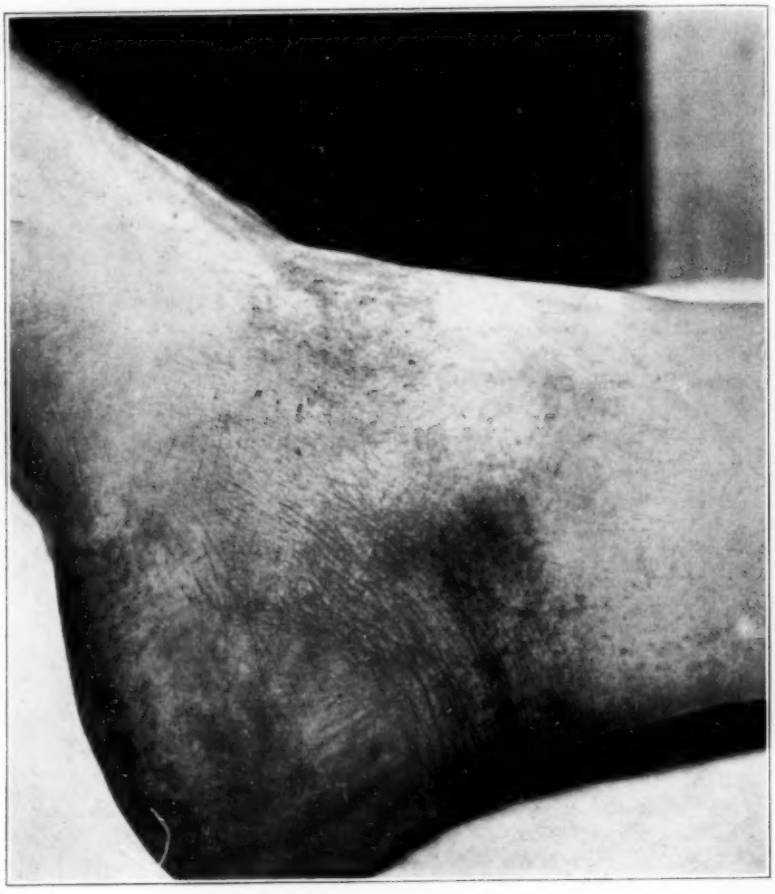

Fig. 1 (case 1).—The right foot, showing a band of dermatitis around the ankle.

shoes, and indicated that this was the cause of the dermatitis on the feet and ankles.

Examination of macerated skin from between the toes in a solution of potassium hydrate revealed sporulated mycelia. However, fungi were not found in the scales taken from the surface of the affected skin on the ankles.

Treatment by means of soothing applications gave no relief as long as the patient continued to wear the same shoes. Therefore, he was advised to buy

another pair of shoes. He purchased tan shoes of a different make. Resolution promptly began; the itching subsided, and in a week no visible eruption was present.

A communication from the manufacturer of the shoes that the patient had been wearing brought the information that the sample submitted (taken from the inner band of the shoe) was what is commonly known in the trade as "bleached kip." He further said that he had heard of only one or two other instances in which leather in shoes had affected the wearer's feet. From an importer, the information was obtained that "bleached kip" is made from cow hide which

Fig. 2 (case 1).—Eczematous reaction on the forearm to the application of "bleached kip" cut away from the inside of the shoe and applied as a patch test for twenty-four hours.

is tanned and wottle-barked in India. It is then shipped to England, where it is put through a bleaching process, which conditions it for linings. This bleach probably consists of either bisulphate or hyposulphite of soda.

Unfortunately, the patient was not available for further tests to determine the specific cause of the dermatitis. As his skin did not react to other shoe leather, it is plausible that the reason for the sensitivity was the presence of a chemical used in the finishing process for the particular kind of leather in his shoes.

Case 2.—Mr. W. H., aged 48, a salesman, when first seen on Oct. 10, 1930, stated that an eruption had begun on his feet two months previously and had steadily become worse. He had purchased a pair of shoes shortly before the eruption had begun and since then had been wearing them, alternating with another pair of shoes. He stated that before the inception of the condition, and while he was wearing the new shoes, his feet had been thoroughly soaked while walking through tall grass. The feet had also perspired considerably during the past few weeks.

On examination, there was an acute dermatitis on both feet, including the toes and extending along the dorsa and sides of both feet to the ankles (fig. 3).

Fig. 3 (case 2).—Eczematous eruption on the dorsum and sides of the right foot and around the ankle. The picture was taken the day after the shoes were discarded, but edema was still noticeable about the ankle.

At the ankles the eruption showed a fairly definite border; above this, a few erythematous, scaly patches were present. The soles were not affected. There was considerable edema about the ankles and numerous scratch marks and excoriations on the affected skin. Macerative dermatophytosis was present between the toes.

The two pairs of shoes worn by the patient were black. They were made by a reputable firm, an entirely different one from that referred to in case 1. There was no canvas lining in the inside of the shoes.

Samples of leather from the inside of the shoes of each pair were sliced away and applied to the anterior part of the forearm in the form of patch tests. Within twenty-four hours there was a definite, pruritic, eczematous response on the skin under each patch (fig. 4). Similar strips of the samples of leather were applied to three subjects used as controls without invoking a reaction. Since the leather

to which he reacted was calf, eight other samples of calf, collected from various sources, were applied to the patient's arms. Four of the eight tests invoked an inflammatory reaction, which remained for over a week in each instance. There was no reaction to "bleached kip" or goat skin.

The patient was instructed to wear plain white lisle socks, and bought a new pair of tan shoes. The local application of a soothing lotion was prescribed. The acute inflammation began to subside at once; the pruritus disappeared, and in two weeks the eruption had entirely vanished.

Fig. 4 (case 2).—Eczematous reaction to several irregular pieces of leather taken from two pairs of shoes the patient was wearing and applied in the form of a patch test for twenty-four hours. The adhesive tape is covering two other pieces of leather and shows the method of applying the test.

TANNING OF SHOE LEATHER

The production of shoe leather [2] is extremely complicated. In all, from twenty to eighty distinct processes are required, so that several months elapse before the leather is ready for use. Before the hide reaches the tanner it is preserved by primitive tanning, drying or salting when wet. At the tannery this preservative and dirt are removed by

2. American Leathers: Prepared and published by the American Leather Producers, Inc., New York, 1929.

washing. The hair is loosened by lime solutions and is removed, as well as any superfluous bits of flesh, by means of knives on a revolving drum. The pores are opened by soaking the hides in solutions containing bacteria and mild acids. The hide or skin is then pickled in a salt solution, after which it is ready to be tanned.

The following four methods of tanning are in common use: (1) a vegetable process in which tannic acid is the active ingredient; (2) a chrome process in which chromium sulphate or chloride is used; (3) a combination of the two aforementioned methods, and (4) an alum or alum-chrome process, which is a modification of the chrome process by the addition of alum.

The vegetable process is still used extensively in foreign countries. The chrome process is an American advance in the art of tanning and was first introduced about forty years ago. Today this process is in vogue in the United States in the making of most of the upper leather in shoes.

Following the process of tanning, the leather is put through a series of operations which depend entirely on the result desired. It is first shaved on the flesh side to make it uniform in thickness, and, if too thick, it may be split, the upper thickness being called the "grain" and the other being spoken of as the flesh "split." It is then "fat-liquored" to make it pliable and waterproof. This is accomplished by soaking it in drums containing such ingredients as castor, cod or neat's foot oils or yolks of eggs. Following this, the leather may be dyed, coal tar derivatives, extracts from rare woods or other complex chemicals being used, depending entirely on the color desired. The leather is then stretched, dried and trimmed. The final processes may include coating with thin layers of seasoning compounds, such as glycerin, oils, milk, etc.; "boarding" or creasing the leather to add to its attractiveness, or "glazing" to produce a glistening surface or "brushing" in dull leathers; finally, the leather is usually ironed by hand to remove all wrinkles. It is trimmed and graded, and then it is ready for shipment.

Since none of the larger manufacturers of shoes use leather from a single source, it is difficult, if not impossible, to trace the manufacturer who made the leather in a given pair of shoes. The tanning processes of every manufacturer of leather are distinctive, and the details are kept secret. Because of these facts a patient showing a hypersensitiveness to shoe leather can learn only through experience whether a given pair of shoes will prove to be irritating. Once his attention has been drawn to the meaning of hypersensitivity in relation to his own skin, he will act promptly if the trouble recurs. The cause having been removed, the effect is destroyed.

COMMENT

Bloch [3] reported a positive eczematous reaction of the skin to the application of shoe leather in a patient who had recurring attacks of subchronic eczema of the feet for two years. Recovery followed when the shoes were discarded. In the two cases herewith reported, clinical improvement and finally entire recovery took place when the suspected shoes were replaced. This fact, together with positive patch tests, demonstrated that shoe leather was the cause of the eczematous eruptions on the feet of these patients. In both cases, during very hot weather, perspiration to a marked degree was noticed by the patients, and in the second case the feet were thoroughly soaked just prior to the onset of the condition. In both instances, itching was a troublesome feature, and in the first patient this symptom antedated the eruption by two and a half months.

CONCLUSION

The two cases reported point to the fallacy of considering all dermatoses of the feet to be of fungous origin. The condition may have escaped recognition or it is extremely rare, as it is not mentioned in any of the standard texts on dermatology or monographs on dermatitis venenata. A review of the literature failed to yield any reports of cases. However, it seems logical to keep the possibility of such a condition in mind in dealing with dermatoses of the feet, especially those that have proved refractory to ordinary methods of therapy.

200 West Fifty-Ninth Street.

3. Bloch (footnote 1).

XANTHOMA DIABETICORUM

REPORT OF A CASE *

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AND
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In view of its similarity to a case reported by Wile, Eckstein and Curtis,[1] we felt that the following case was of interest and worth reporting.

REPORT OF A CASE

History.—G. L., a white man, aged *26*, a native of Texas, a clerk, entered the hospital with a history of having lost 60 pounds (*27.2* Kg.) in two and one-half years, excessive appetite, weakness, marked thirst, polyuria and "sores" on the elbows, legs and angles of the mouth during the past two years. On admission,

Photograph showing distribution of lesions in a case of xanthoma diabeticorum.

his weight was 146 pounds (66.2 Kg.). In addition, he had had dyspnea during the past six months, swelling of the ankles for the past three months and nocturia during the past two years. He smoked heavily, but he did not drink alcoholic beverages. He had had measles, whooping cough and influenza, with uneventful recoveries. Tonsillectomy had been performed twelve years previously.

Examination.—On examination, the patient showed signs of marked loss of weight and anemia. The blood pressure was 94 systolic and 64 diastolic. The pupils reacted to light and in accommodation. The fundi were normal. There was an acetone odor to the breath. A few teeth had been repaired. The heart was normal, except for a markedly diminished first sound over the aortic area. The lungs, abdomen and genitalia were normal. There was pitting edema of both lower extremities. The knee jerks were present, but diminished. No pathologic reflexes were elicited.

On the skin there were numerous oval-shaped nodules of various sizes, sharply outlined, with slightly inflammatory bases covered with thick, dirty gray crusts

* Submitted for publication, Feb. 26, 1931.

* From Highland Hospital.

1. Wile, Udo J.; Eckstein, Henry C., and Curtis, Arthur C.: Lipid Studies in Xanthoma, Arch. Dermat. & Syph. **19**:35 (Jan.) 1929.

which on removal left a bleeding surface discharging pus. There were also firm, orange nodules the size of a split pea, without inflammatory bases or crusts. These nodules were bilaterally distributed with a predilection for the extensor surfaces (elbows and knees), the buttocks and the angles of the mouth. There were also a few nodules on the posterior aspect of the neck.

Laboratory Findings.—A determination of hemoglobin could not be made because of the enormous amount of particles of fat in the blood serum. The serum was about the consistency of coffee cream. The differential count showed: red blood cells, 2,650,000; white blood cells, 7,800; polymorphonuclears, 62 per cent; small lymphocytes, 36 per cent, and large lymphocytes, 2 per cent.

The Wassermann reaction of the blood was negative. Tests for sugar tolerance gave the following results: On a fasting stomach, the sugar content of the blood was 250 mg. per hundred cubic centimeters; urinalysis gave a reaction of plus 1. Fifty grams of dextrose were administered by mouth. One-half hour

Disappearance of Lesions as Lipid and Cholesterol Content of the Blood is Decreased

Date	Diet	Sugar Content of the Blood, Mg.	Cholesterol Content of the Blood, Mg.	Total Lipids Content of the Blood, Mg.	
10/ 8/30	.....	264	769	7,900	Cutaneous lesions as in photograph
10/24/30	.....	375	700	.....	
10/28/30	Protein, 50; fat, 50; carbohydrate, 200				
11/ 4/30	.....	361	584	.....	Involuting
11/ 7/30	Protein, 55; fat, 210; carbohydrate, 35				
11/15/30	.....	350	506	.....	Retrogressing rapidly
11/16/30*	Protein, 55; fat, 184; carbohydrate, 78				
11/22/30	.....	376	384	.....	Involution practically complete
12/ 2/30	.....	294	270	2,127	Complete involution

* Patient going into acidosis; lost 34 pounds; put on diabetic diet with 50 units of insulin daily.

later, the sugar content of the blood was 263 mg. per hundred cubic centimeters; urinalysis showed a reaction of plus 2; one hour later: sugar content of the blood, 323 mg.; urinalysis, plus 4; two hours later: sugar content of the blood, 337 mg.; urinalysis, plus 4; three hours later: sugar content of the blood, 333 mg.; urinalysis, plus 4. Urinalysis showed the following results: sugar, plus 4; acetone, plus 1; diacetic acid, plus 1, and no albumin.

Biopsy performed on a small, orange, noninflammatory, noncrusted nodule disclosed the pathologic process typical of early xanthoma. Xanthoma cells were scarce and were located perivascularly.

In this case we attempted to repeat Wile's work in diabetic xanthoma. We have followed his procedure and have obtained the results given in the accompanying table.

COMMENT

A case of xanthoma diabeticorum is reported in which a marked involution of the lesions could be produced by control of the patient's diet. Final complete involution occurred when the diet was supple-

mented with insulin. This was demanded by the patient's poor general condition.

The gradual decrease in the size of the lesions closely paralleled the decrease in the cholesterol content and the total lipid content of the blood. Complete disappearance of the lesions occurred as the cholesterol and lipids dropped to lower levels, in spite of the fact that the sugar content of the blood remained at a higher level than when the experiment began. This would seem to indicate that xanthoma diabeticorum is closely related to the disturbance of fat metabolism secondary to diabetes rather than to the diabetes per se.

KERION MICROSPORICUM WITH HEMATOGENOUS AND ECTOGENOUS MICROSPORIDS

REPORT OF A CASE, WITH REFERENCE TO THE LITERATURE *

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BOSTON

Kerion of the scalp due to microsporosis is sufficiently uncommon to warrant a report. A case combining this feature with hematogenous microsporid (papular exanthem, and lichen spinulosus) and ectogenous microsporid is reported because of the augmented interest.

REPORT OF A CASE

H. R., a Portuguese school child, aged 6 years, was seen at the clinic on Sept. 23, 1930. On examination, a sharply outlined, circular patch of alopecia about 30 mm. in diameter was seen in the left parietal area. The patch, which was of three weeks' duration, was noninflammatory and contained numerous broken off hairs sheathed with gray scales characteristic of the circumpilar collarets of microsporosis. The Wood light showed fluorescence. Tincture of iodine and a mild salve of salicylic acid and resorcin were prescribed.

On November 8, a crusted lesion was present over the area. On November 13, typical kerion formation had developed, a raised, boggy, circumscribed lesion occupying the patch of alopecia. The surface of the lesion was flat, with a crusted honeycombed appearance, and showed discrete follicular pustules with protruding hairs at the periphery.

Numerous hairs from these pustules revealed mosaic masses of *Microsporon* with some discrete groups of organisms in the loose exudative material contiguous to the hairs.

Cultures planted on November 13 with material from the lesions (hairs with pustular exudate) were positive for *Microsporon lanosum.*

At this time, inspection of the surface of the child's body revealed an eruption that had been present for three days. The eruption was generalized and symmetrical, and had appeared simultaneously. It consisted of numerous grouped and discrete, inflammatory, lichenoid papules, ranging in size from that of a pinhead to that of a split pea; some were surmounted with pustules.

There were no areas of predilection; the flexors and extensors of the extremities, the trunk both anteriorly and posteriorly, the buttocks and the face were affected.

In addition to this obvious eruption, a typical lichen spinulosus was present, affecting the recognized sites of predilection. The lesions were conical follicular keratoses, similar to goose-flesh, but more pronounced; they occurred in oval to round patches of various sizes: one over each buttock in the lower lumbar region, one below the right buttock, a solitary patch in the left popliteal fossa and one above the patella of the right knee.

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* Submitted for publication, Feb. 2, 1931.

* From the Skin Department of the Boston City Hospital.

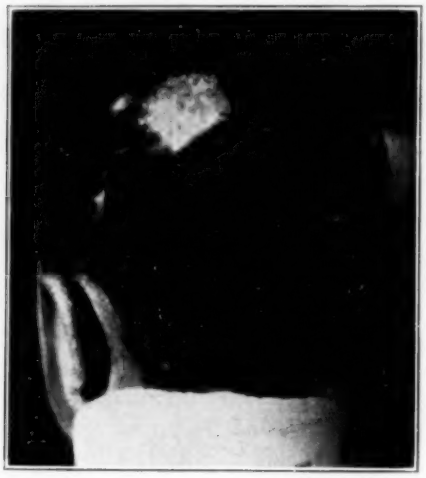

Fig. 1.—Kerion and smaller crusted lesions are seen in the left parietal area. The left ear shows discrete and grouped vesicopustules; these lesions are regarded as ectogenous microsporids.

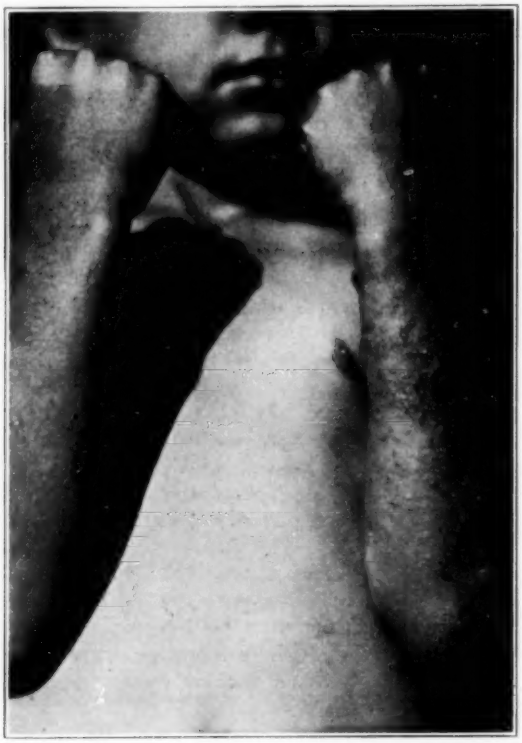

Fig. 2.—Lichenoid papules, some of which are surmounted with pustules, are seen on the extensors of the arms.

Fig. 3.—The exanthem is shown on the flexors of the legs.

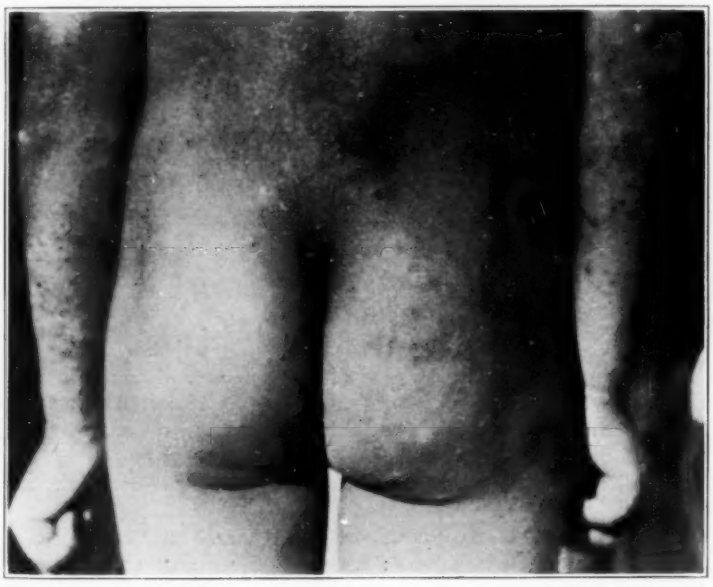

Fig. 4.—The exanthem is shown distributed over the trunk, posteriorly, the buttocks and the arms. In addition, a round patch of lichen spinulous lesion is seen over the right border of the sacrum.

On November 17, groups of papulopustules with protruding lanugo hairs were noticed on the lobe of the left ear and on the adjacent skin. Microscopic examination of these hairs and pus gave negative results for fungi. Cultures planted with this material were negative for fungi or pyogenic organisms.

Other laboratory studies were performed on this date, with the following results: Microscopic examination of scales from the inflammatory lichenoid papules and spinulous lesions gave negative results for fungi; cultures planted with material from the same sources were negative for fungi; a blood culture was negative for fungi; hairs and dry exudative matter from a dry, raised, crusted patch, the size of a dime, on the right parietal region were microscopically and culturally positive for *Microsporon lanosum*.

Fig. 5.—Cultures of Microsporon lanosum, 17 days old, on Sabouraud's medium. The central prominences are due to accumulated growth over several aggregate hairs; other cultures showed central depression.

On December 6, the site of the kerion was smooth, noninflammatory and devoid of hair. The papulopustular lesions had disappeared, a branny desquamation with some pigmentation indicating their distribution. The lichen spinulous lesions, however, were still present.

On December 13, while the generalized eruption had disappeared, the spinulous lesions were still present over both buttocks.

There was no evidence of constitutional disturbance.

Examination of the blood showed: Kahn reaction, negative; white cell count, 9,100; hemoglobin, 90 per cent (Tallqvist); differential white cell count: polymorphonuclears, 53 per cent; lymphocytes, 35 per cent; mononuclears, 6 per cent; eosinophils, 5 per cent, and basophils, 1 per cent; the erythrocytes and platelets were normal.

COMMENT

The epidemic of microsporosis of the scalp in Vienna in 1924 was a valuable source of information concerning atypical Audouini's microsporia and microsporids. At the time, Arzt and Fuhs [1] described a case of kerion caused by *Microsporon audouini* in a boy in whom, three days after an injection of combined trichophytin and microsporin, an eruption developed which was designated by them as lichen microsporicus.

The eruption was a bright red, follicular, tuberculid exanthem with lichenoid structure distributed over the central and upper portion of the chest and back and sparsely on the upper extremities. There was no change in the general condition of the patient; the temperature was normal. Microscopically and culturally, the scales from the lichenoid lesions of the trunk were negative for fungi. Microsporin was administered intracutaneously, and gradually the lesions became flatter and drier, indicating an increased allergic state. These authors called attention to the identity of microsporids and trichophytids.

Up to this time there had been few case reports by German and Swiss authors.[2] Finnerud,[2] in his study of fourteen cases of lichen microsoporicus, derived his information from the previously mentioned Viennese epidemic. These cases were associated with moderately to severely inflamed tinea tonsurans originating from *Microsporon audouini*, but did not include a kerion. He designated two forms of lichen microsporicus, the lichenoid and the eczematoid. The lichenoid consisted of red, solitary or grouped follicular papules, the size of pinheads, most of which were capped by a delicate scale a day or two after their appearance. Occasional papules contained minute horny spines, and not infrequently vesicles or pustules were seen at the apexes. The face and the flexors of the extremities were especially involved.

The eczematoid form occurred alone or with the lichenoid type and comprised round to oval efflorescences, bright red with yellow centers and furfuraceous scaling. Their favorite locations were the upper half of the chest, anteriorly, and the sides and front of the neck. The eruption bore a close resemblance to pityriasis rosea and seborrheic dermatitis.

My case was the lichenoid form of lichen microsporicus and, in addition to the generalized lichenoid papules present, manifested typical lichen spinulous lesions in the recognized areas of predilection. These lesions peristed after the generalized papular eruption had disappeared and were clinically identical to trichophytid caused by mycosis of the glabrous skin (toes) (compare figs. 4 and 6).

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1. Arzt, L., and Fuhs, H.: Kerion Microsporicum, an Unusual Form of Atypical Audouini's Microsporia, Arch. f. Dermat. u. Syph. **149**:9, 1925.

2. Finnerud, C. W.: Study of Generalized Eruption Caused by Microsporon Audouini: Lichen Microsporicus, Brit. J. Dermat. **37**:63 (Feb.) 1925.

Finnerud's cases occurred with superficial, more or less highly inflamed tinea tonsurans in contrast to trichophytids which appear after the production of kerion.

Microsporids and trichophytids are provoked by roentgen epilation, the administration of antigens and provocative dressings on the scalp. These measures evidently loosen the tissue and facilitate the absorption of toxins and fungous elements which elicit the allergic response.

Less than 10 per cent of microsporids are due to these provocative agents,[2] so that the virulence of the organism must be considered impor-

Fig. 6.—Lichen spinulous lesions over the tibia caused by trichophytosis of the toes. These are identical with the lichen spinulous lesions in figure 4, which were due to microsporosis.

tant etiologically. The patient in my case had no provocative therapy[3] and undoubtedly the kerion factor, with deep inflammation, and the virulence of the organism were responsible for the appearance of the microsporid.

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3. Provocative treatment of the scalp includes dressings that are firmly bound to the scalp, such as Unna's glycogelatin dressing. Apparently, the drugs used by the subject in this report do not fall into this class.

Low [4] reported a case of kerion of the scalp with microsporid due to the *Microsporon* of the cat. The microsporids were scaly red papules on the neck, body and arms, and appeared after roentgen epilation. He considered the eruption as an octogenous microsporid because the lesions, more numerous on the neck and the chest, had followed epilation, which afforded the loosened hairs opportunity of being rubbed into a sensitive skin. He also called attention to an extensive pustular eruption over the scalp following epilation for microsporosis. Fungi were never found in the pus; the pustules were regarded as "phytids."

The report of my case includes reference to solitary and grouped pustules and vesicopustules of the left auricle and the adjacent skin. These pustules were negative for fungi and *pyogenes,* and I considered them ectogenous "phytids" provoked by fungi or toxins from the nearby kerion.

The constitutional manifestations of microsporid are mild in comparison to those of trichophytid; symptoms of constitutional nature were wanting in my case.

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4. Low, R. C.: Some Cases of Trichophytides and Microsporides and Their Connection with Lichen Spinulosus, Brit. J. Dermat. **36**:432 (Oct.) 1924.

MACULAR ATROPHY OF THE SKIN*

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Concrete knowledge of macular atrophy of the skin may be said to begin with the year 1891. Prior to that time the relevant literature appears to be both meager and confused. Thus, cases reported under the title of atrophia cutis maculosa were later proved to be disseminated lupus erythematosus, morphea or white spot disease.

To Jadassohn belongs the credit of first clarifying the subject. In 1891, before the second German Dermatological Congress in Leipzig, he gave the clinical and pathologic basis to the now well defined group of macular atrophy, and introduced the term anetodermia (ἀνετός, loose, flaccid).

Almost at the same time, there appeared the report of a case by Schweninger and Buzzi in the "International Atlas of Skin Diseases" under the descriptive and lengthy title of "Multiple, Benign, Tumor-Like New Growth of the Skin" which, as will be seen later, is nothing other than a clinical variety of macular atrophy of the skin.

The second period in the study of macular atrophy is the year 1910, in which Finger and Oppenheim published their classic monograph, "Die Hautatrophien." In their study they critically evaluated the accumulated reports up to that time and, on the basis of their own studies, contributed conclusions that, with few exceptions, in the main hold good to this day.

In recent years, which may be regarded as the third period, considerable interest has been shown in the subject of the atrophodermas by many observers. Kogoj, Singer, Alexander and Zenger, Pautrier and Diss, Blatt, Pusey, Sweitzer, Dowling, Fidanza, Pardo-Castello and a host of others have contributed to every phase of the subject. These studies help one to a better conception of grouping, etiology and pathogenesis, but the subject is still by no means clear and requires much further study. Prompted by two examples of our own observation, one an unusual case, we undertook to review the subject in the hope of clarifying, at least to some extent, this comparatively rare but important group of atrophies of the skin.

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REPORT OF CASES

CASE 1.—*History.*—Mrs. F., 43 years of age, white, well built and of a healthy family stock, did not recall ever having been seriously ill; aside from her present condition she had never had any cutaneous trouble. She was an intelligent woman, and when questioned about constitutional diseases, particularly tuberculosis or syphilis, she gave a negative history. She was the mother of a healthy girl, aged 16. This had been her only pregnancy.

Her trouble began sixteen years before, during pregnancy. At first she noticed a few small elevations on the upper part of the left arm. To these she called her physician's attention. He dismissed her trouble with the statement that they

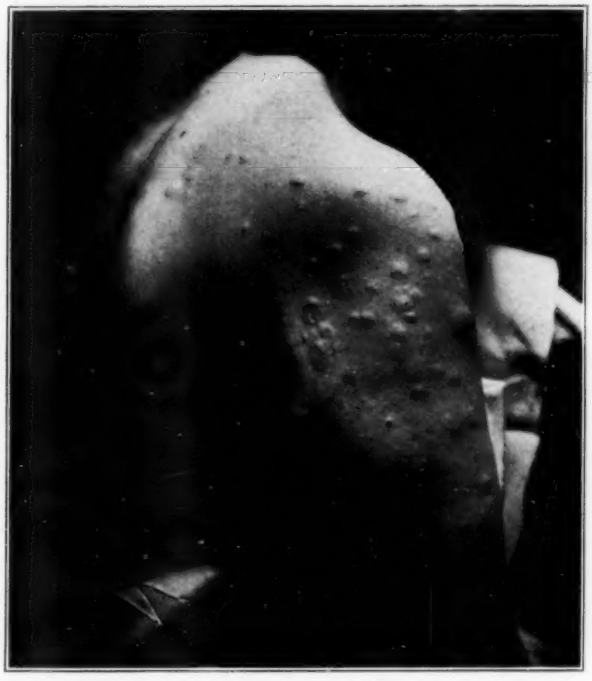

Fig. 1 (case 1).—Typical lesions of anetodermia Schweninger and Buzzi.

would disappear after the termination of her pregnancy. There were but few lesions at first, but as time progressed, they increased in size and number. She definitely stated that they were never red or pink, but always the color of the skin. She was certain that the lesions continued to appear up to the date of her examination (sixteen years after the onset). There were no subjective symptoms at any time. In January, 1930, she consulted Dr. Chargin because of an acute eruption which had appeared suddenly. It consisted of "lumps" accompanied by a severe itching.

Examination.—At first glance, one observed an urticaria. Swellings of various sizes ranging from that of a pea to that of a walnut, flat, convex or balloon-shaped and isolated, were seen on the upper part of the body. The color was bright red, but some of the lesions showed pale centers. Practically all the lesions

were localized on the back around the shoulder blades and on the outer aspect of the upper arms. The flexor surfaces of the arms were comparatively free. No lesions were seen below the belt-line. They were extremely itchy. Marked dermographia was present. When the patient was questioned, it was found that these swellings were of only a few days' duration and that they presumably followed the ingestion of oysters. The patient noticed that the "lumplike" lesions appeared on top of the elevations which had been present for many years. In a search of those preexisting elevations, we found a few scattered lesions on the back, which will be described in detail later and which helped us to recognize the true nature of the disease. The acute eruption had evidently developed on top of the former tumor-like masses and was clearly a giant urticaria. Appropriate medication was ordered and the urticaria, after running a protracted course of weeks, disappeared leaving the original "tumor-like lesions."

Fig. 2 (case 1).—Lesions with pronounced phenomenon of herniation.

Six weeks after the onset, when reexamined, the patient presented an entirely different picture. There was no trace of the urticarial eruption. On the other hand, numerous lesions were seen on the upper part of the back, particularly in both scapular regions, and on the upper part of the arm, especially on the extensor surfaces. There were also a few lesions on the anterior portion of the chest and a few scattered over the back, down to the sacrum. There was a single lesion below the left breast and two small flat lesions on either side of the middle of the left eyebrow and separated by the latter. The lesions were isolated or in groups. The grouping was particularly marked around the shoulders and upper part of the arms. Each group consisted of small and large lesions, from five to eight in number. The lesions varied in size from that of a millet seed to that of a twenty-five cent piece. The consistency varied in both the small and large lesions. The smaller were, however, usually softer. They were mostly prominent and balloon-like. The palpating end of the finger was able to press the balloon-

like lesions into and below the level of the skin, which gave the feeling of forcing a soft tumor through a sharply marginated ring, as in a hernia. On withdrawal of the finger, the lesions assumed their original size and shape. This phenomenon of herniation, seen in both types of lesions, was more often observed in the smaller lesions and was a characteristic and constant clinical feature. Many lesions were apparently solid or at least firm to the touch. Even when stretched in any direction, the elevations were still marked and the tumor-like aspect remained. The

Fig. 3 (case 1).—Edema and perivascular cell infiltration. Hematoxylin and eosin.

surface was wrinkled, especially when looked at askance; and this was more marked in the softer lesions. The color was that of normal skin or perhaps whiter. In certain areas, as underneath the arms, the lesions assumed a bluish hue. The follicles in the skin covering the lesions were prominent and particularly marked when stretched, as is observed after an intradermal injection. Lanugo hairs were present.

Laboratory tests showed: urine, normal; Wassermann reaction, negative; blood picture, no abnormalities, and tuberculin reaction (Pirquet), negative.

Microscopic Examination (Dr. Satenstein).—Low Power Magnification: The epidermis was generally thinned and flattened, and in many areas the rete pegs were effaced. The entire cutis showed an interstitial edema, more marked in its lower portion. From the upper portion to the midcutis this was noted in the form of clear spaces, while in the deeper cutis the bundles of connective tissue were markedly separated from each other. In the upper zone in particular, but also in the deeper, the lymphatics and blood vessels were dilated. Parenchymatous

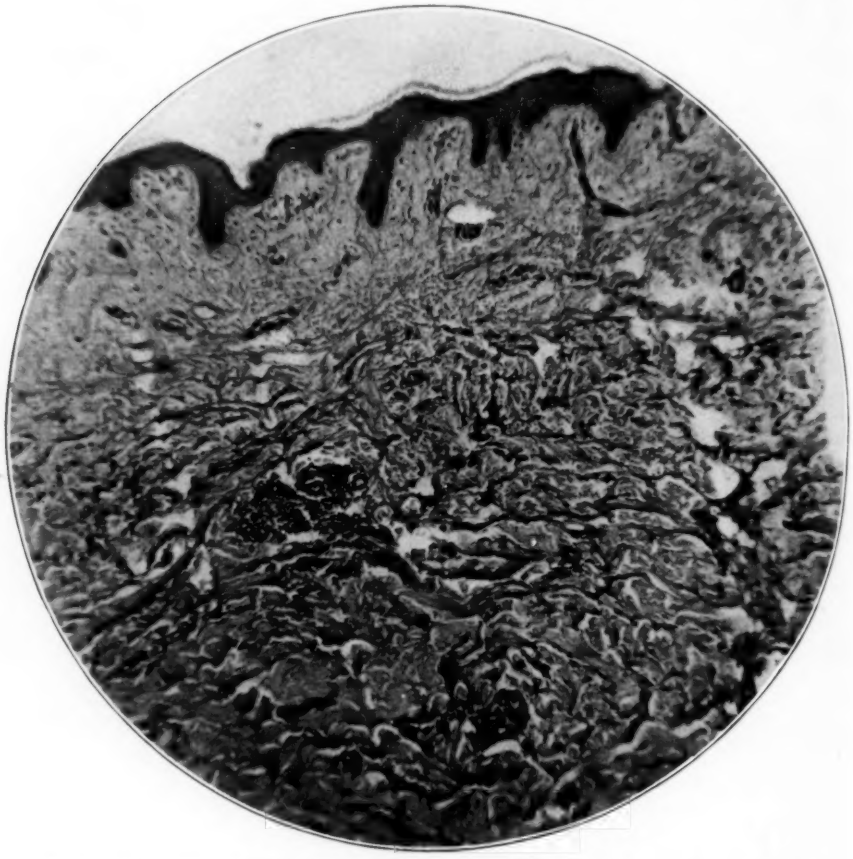

Fig. 4 (case 1).—Rarefaction of collagen and loss of elastic tissue. Weigert's elastic tissue stain.

edema was also present throughout the cutis. Thus, in the subepidermic zone, the outline of the individual bundles of fibers was not easily distinguished. They seemed somewhat cloudy and homogeneous, while deeper in the cutis, the bundles were swollen and rigid, obliterating the usual wavy appearance of the cutis framework. There was a moderate cellular infiltration limited to the upper cutis. The elements of the coil glands that were present were more or less disintegrated (this has never been described before). To sum up, there was hypertrophy of the entire cutis due to edema which was interstitial and parenchymatous, and in

places some degeneration of the connective tissue was seen. The epidermis was thinned, but this was due to tension and not to atrophy.

With Weigert's elastic tissue stain there was an absence of elastic tissue fibers in the upper cutis as well as in the subepidermic zone. In the midcutis fragments of fibers were observed. Deeper down the elastic fibers became more evident, but nowhere was the usual and normal amount or arrangement present. In the deep cutis, there was clumping of the broken fibers. The elastic tissue fibers in the deep vessels were still present. They were also present in the walls of the upper vessels.

High Power Magnification: Aside from hydrops of the epithelium, nothing noteworthy was observed in the epidermis. Where thinning of the epithelium was marked, it was due to edema of the papillary body framework. The parenchymatous edema and the homogeneous appearance of the upper cutis were more marked under high power magnification. The staining was somewhat different from the usual type. The upper portion of the bundles took the stain more intensely, suggesting a moderate degree of degeneration of collagen (tinctorial degeneration). The cellular infiltration was predominantly perivascular and chiefly composed of lymphocytes and some wandering connective tissue cells. The vessels were dilated and the endothelial lining was swollen, the nuclei projecting into the lumen of the vessels. This indicated a secondary process in which there was an irritation of the endothelial lining. There was a degeneration of the lining cells of the coil glands, but the nuclei were still well retained.

Case 2.—Mrs. R. W., aged 21, was presented at the January, 1931, meeting of the section on Dermatology and Syphilology, New York Academy of Medicine, by Dr. Max Scheer.[1] The patient's family and personal history are irrelevant. She is at present in good health and the mother of a 2½ year old child. One and a half years before the present writing, an eruption began on the left side of the forehead at the hairy margin. It became manifest by the appearance of a reddish-blue "spot," rather small at first, which gradually spread peripherally to its present dimensions. Numerous other "spots" made their appearance, especially on the forehead, underneath the eyes and over the back.

Examination.—Numerous isolated and more or less grouped lesions were seen on the left side of the forehead, near the hair line, below both lower eyelids and on the cheeks, and there was a group of about ten lesions on the back of the thorax. The lesions on the face resembled lupus erythematosus except for the absence of patulous follicular openings and the usual type of scaling. The recent lesions, reddish in color, were slightly raised above the level of the skin and had a somewhat solid consistency. About fifteen of these lesions were present on the forehead and the face. The color of the older lesions was reddish blue. The skin of the affected areas was smooth and shiny and a border could be distinctly felt. Following the development of these lesions one noted that they were raised, round or oval, and in the course of time they involuted leaving variously sized, pinkish-blue, depressed areas. Three irregularly outlined patches measuring 2 by 1 inches (5 by 2.5 cm.), could be seen on either side of the bridge of the nose. The lesions on the back were from the size of a millet seed to that of a pea, whitish and distinctly ballooning, some showing the typical phenomenon of herniation. These lesions strongly resembled those observed in case 1.

1. Dr. George M. MacKee gave us the privilege of studying and reporting this case.

Laboratory tests showed: Wassermann reaction, negative; urine, normal; tuberculin intradermal test with 1:100,000, 1:10,000 and 1:5,000 dilutions, negative, with a 1:1,000 dilution, plus-minus, and with a 1:100 dilution, one plus.

Microscopic Examination (Dr. Satenstein).—Lower Power Magnification: The blood vessels in the subepidermic zone were all dilated; the lymphatics were also dilated. The vessels of the midcutis were moderately dilated. There was no apparent dilatation of vessels of deep cutis or subcutis. There was a moderate

Fig. 5 (case 2).—Early lesions of Jadassohn's anetodermia.

interstitial edema throughout the entire cutis, most marked in the subepidermic zone, i. e., the region between the epidermis and the subepidermic vessels. In this zone, there was some rarefaction and breaking up of bundles, and in a few zones there was a distinct granular breaking up of some of the bundles and fibers. The epidermis was thinned; the rete pegs were compressed and in places obliterated. The papillary bodies were swollen. In some of them the capillaries were dilated and there was marked interstitial edema of the framework fibers. There was a definite dilatation of the perivascular lymphatic spaces of the upper cutis and to some extent of the midcutis. In these spaces there was a fairly sharply limited

cellular infiltration. This was seen to a more marked degree in the region of the hair follicles. There were no secondary changes in the epidermis due to edema.

High Power Magnification: The vessel walls were edematous; nuclei projected into the lumen. The cellular infiltration in the perivascular lymphatic spaces was predominantly lymphocytic though many wandering connective tissue cells were intermingled. Scattered throughout the entire cutis with no relation to vessels or lymph spaces were discrete and, in places, wandering connective tissue cells.

Staining with Weigert's elastic tissue stain revealed that in the region where the edema was most marked and the cellular infiltration most pronounced, the elastic tissue fibers appeared to be totally wanting. This corresponded to the zone of the upper cutis (see description of appearance under low power magnification). The fibers in the upper portion of the midcutis were fragmented and sparse. In the region of the follicles they appeared to be wanting all the way to the deep cutis. The fibers of the upper portion of the midcutis and deep cutis were present though for the greater part fragmented. Fragments of subepidermic elastic tissue network in isolated papillary bodies appeared to be present.

COMMENT

We regard case 1 as typical of the Schweninger and Buzzi type of macular atrophy. As in their case, there was no preceding clinical evidence of inflammatory changes at the site of the lesions. The disease developed gradually over a period of many years and, so far as we know, continues to date, since some lesions seem to have developed recently. We believe that syphilis can be definitely excluded, for in neither the history, the physical examination nor the laboratory data was there the slightest suggestion of that disease; nor was there reason to suspect tuberculosis in our case, the results of physical examination proving entirely negative. Furthermore, there was neither a history nor evidence of any dermatosis that could be held responsible for the appearance of this type of eruption. We are accordingly constrained to consider the case one of primary macular atrophy. The unusual feature, which, so far as we know, was never observed before, was the occurrence of giant urticaria which was practically limited to the lesions of macular atrophy. It was a remarakable clinical observation that nearly all the lesions, numbering more than 200, were attacked by the urticarial eruption. There were a very few urticarial lesions on unaffected parts of the skin, and it is important to note that these urticarial lesions cleared without leaving the slightest trace of atrophy. Repeated reexamination of the patient showed no atrophic changes following the urticaria. The urticaria per se was typical in onset, clinical features, course and subjective symptoms, and, as stated in the history, in the course of several weeks completely disappeared under routine treatment. An attempt to reproduce the urticaria was unsuccessful. There still persisted a dermographism which was particularly marked in the atrophic lesions. In the

literature there are records of cases of macular atrophy which began with urticaria. Our case differs from Pellizzari's case of "eritema orticato atrofizzante." In his case, there were definite urticarial-like lesions at the outset, persisting for months without any subjective symptoms and terminating in macular atrophy. The same may be said to be true of the case of Balzer and Reblaub.

It is also known that toxic eruptions (toxicodermas) and macular atrophy may coexist. In the experiment of Oppenheim, a toxic eruption appeared following an injection of serum obtained from an artificial blister (cantharides plaster). The eruption was generalized, but did not affect the macular atrophic spots. In the Spanish literature (Sainz de Aja, Corisa, Azua), cases are reported in which the internal administration of iodides resulted in lighting up of the lesions of macular atrophy. A similar case was presented by Frei before the Breslau Dermatological Society. Administration of iodides caused swelling and redness of the spots of macular atrophy. Readministration did not, however, reproduce the phenomenon. Attempts to reproduce the urticarial lesions in our case by administration of iodides, acetylsalicylic acid, acetphenetidin and other drugs and foodstuffs were unsuccessful. It is thus evident that our case was unique in the sense that it did not correspond with any of the aforementioned cases. We are at a loss to explain the occurrence of urticaria almost limited to the atrophic lesions in our case.

Case 2 is an example of Jadassohn's anetodermia. This case presents, aside from the baglike lesions on the back, typical earlier lesions located for the most part on the face. These consist of an inflammatory reddish papule, evidently the primary lesion, and the more advanced somewhat depressed, bluish-red, atrophic lesion. Especially interesting are the atrophic areas on the face, which at first glance convey the impression of lupus erythematosus, coinciding in this respect with a number of cases in the literature. On close inspection, however, one recognizes that we are dealing with macular atrophy. The points of distinction between the two conditions will be considered under "doubtful" cases and differential diagnosis.

CLASSIFICATION

Numerous attempts have been made to classify the entire group of atrophodermas, but with little success. Confusion exists, especially in separating the clinical groups; also an unwarranted attempt is being made to expand the entire conception of the atrophies by including the diffuse and circumscribed sclerodermas in the group (Blatt, Kogoj), thereby placing the "soft" and "tight" atrophies into a single class.

Perhaps the most consistent grouping is that of Finger and Oppenheim. The group that particularly interests us, dermatitis atrophicans

maculosa, is divided by them into idiopathic and deuteropathic, the former being primary and the latter following a preexisting dermatosis, such as syphilis, tuberculosis or leprosy.

Bohač's classification, which differentiated five groups, would seem to indicate that the author was not clear with respect to the conception of primary and secondary atrophies. Moreover he cited cases recorded by Taylor, Abraham, Pellizzari, Smith, Juliusberg, Nicholas and Favre, Thibierge, Vignolo-Lutati, Wechselman and others, which are discussed in our group labeled "doubtful" and which we with reasonable certainty entirely exclude from the group of macular atrophy. It is also our impression that in one of his groups Bohač confounds the Schweninger and Buzzi type of atrophy with cases of von Recklinghausen's disease.

The classifications offered by Fidanza, among numerous others, appear to us insupportable.

In the present state of our limited knowledge, it is extremely difficult to offer a classification that will overcome all objections, yet on the basis of our study and analysis, we venture to suggest the following which, although simple, is nevertheless comprehensive and permits us to classify all recorded types of macular atrophy of the skin:

A. Primary (not preceded by known dermatoses)
  1. Anetodermia Jadassohn
  2. Anetodermia Schweninger and Buzzi

B. Secondary (preceded by known dermatoses)
  1. Syphilis (atrophia maculosa syphilitica)
  2. Tuberculosis and lupus erythematodes
  3. Leprosy (dermatitis atrophicans leprosa Oppenheim)
  4. Secondary to other dermatoses

C. Mixed type of atrophy (macular atrophy and acrodermatitis chronica atrophicans)

Under anetodermia Jadassohn, we include those cases which have been described under a variety of names as clinical entities but which are essentially alike in their course and, except in onset, differ in no way from Jadassohn's anetodermia. Here belong the cases described under the titles "Eritema orticato atrofizzante," "Maculäre Atrophie unter dem Bilde einer Dermographia selecta perstans," "Atrophodermia maculosa pemphigoides," etc. There is an obvious objection to these descriptive titles because they only serve to emphasize an outstanding morphologic feature and a special onset.

The smaller group of Schweninger and Buzzi is undoubtedly a clinical entity. The clinical features of the various cases described in the literature are strikingly alike, and one familiar with a single instance will have no difficulty in identifying the disease and making a correct diagnosis. The total absence of inflammatory clinically perceptible changes and

the great similarity of the histologic picture throughout the disease justify us in separating these cases as a second group of primary atrophy.

With respect to secondary macular atrophies, it may be stated that these are always preceded by definitely known dermatoses. Macular atrophy replacing syphilis or atrophia maculosa syphilitica is the most common of the secondary atrophies. The macular atrophies following other diseases are less common.

This classification, though simple, is nevertheless comprehensive and permits us to classify all recorded types of macular atrophy.

THE VARIOUS GROUPS OF MACULAR ATROPHY

Anetodermia Jadassohn.—The largest and most varied group of macular atrophy is anetodermia erythematosa Jadassohn. The clinical characteristics vary in onset and course, and hardly two cases look alike. Because of this atypical onset in some cases there has been some uncertainty in regard to the conception and classification of this group, leading some authors to separate out their cases as clinical entities. But because of the subsequent development of these cases, in both clinical course and histopathology, we feel confident that they properly belong into this group. In typical cases the anetodermia begins with a sharply defined red spot. This spot grows peripherally and assumes the size of a lentil in a period of a few weeks (Jadassohn, Oppenheim and others). Later, the center of the lesion begins to pale and the surface becomes somewhat wrinkled, assuming the form of a ring. This ring formation was especially stressed by Oppenheim but was rarely mentioned by other authors. The circular lesions can become confluent and thus form bizarre figures. The palpating finger finds a lessened resistance of the affected tissue. Soon the lesion, which is now round or oval, becomes slightly depressed and the border irregularly defined. The redness then disappears and with this disappearance the atrophic stage begins. Then either the lesion becomes distinctly white, shiny and scarlike or, more frequently, the central part of the atrophic area protrudes (baglike) and assumes a livid red or yellowish color. The palpating finger falls into a distinct groove with sharp borders, as if into a hernia ring. This phenomenon of herniation is characteristic and practically always present in one or another lesion and usually in many of the lesions. It is the one constant clinical feature common to all types of macular atrophy. The herniation is explained by the loss of elastic tissue and the resulting mechanical changes in the tension of the skin. Fat may infiltrate the lesions, and when this takes place they are more firm and resemble soft tumors (Oppenheim, Benjamowitsch and Maschkilleisson).

Subjective symptoms are usually absent, though itching was mentioned by Nomland. The color is usually red or violaceous; in the later stages, bluish or white. A café-au-lait color was observed by Benjamowitsch and Maschkilleisson, a brownish color by Weber and the color of normal skin by Fuchs and Rostenberg. In the majority of cases the disease is observed in females, the ratio between the sexes being three females to one male. The number of lesions is seldom referred to by authors, yet Heuss counted from sixty to eighty lesions in one of his cases and Benjamowitsch and Maschkilleisson about seventy.

The usual localization of the lesions is on the trunk, shoulders, limbs, neck and sacral region. Unusual sites of eruption reported are: On the nose and forehead, by Heuss in his second case; on the feet, by Bogrow; in the left pectoral region, by Hudelo and Walter; on the lobe of the ear, by Fasal and Beck; on the forehead, by Leszczyński and Fidanza; on the face, by Nikolski; on the wrist, by Weber and Stebbing, and on the scalp, by Baer.

Occasionally other diseases are associated with anetodermia and in these instances add to the difficulties in diagnosis. Jaffe reports a case in a woman, aged 61, in whom pemphigus foliaceus complicated the picture of macular atrophy. Weber observed vitiligo in his first case; his second case showed a positive Wassermann reaction, and his third, hemiplegia. Adamson's patient had nephritis. Blatt observed endocrine disturbances in some of his cases; Delpiano and others, tuberculosis. Nemeth's case was regarded as lupus erythematosus and later recognized as one of macular atrophy.

Heuss' cases are included by us in the group of anetodermia although we realize that they are atypical in certain aspects. Particularly the lesions on the face in his second case strongly suggest healed lupus erythematosus. Similarily the case of Thibierge, which was followed through to its termination, was demonstrated to be a case of lupus erythematosus, although in its early stages it was diagnosed as atypical anetodermia even by Jadassohn. The cases cited are examples of the difficulties that may be encountered in making a correct diagnosis of macular atrophy.

Anetodermia Schweninger and Buzzi—The conception that macular atrophy of the skin is fundamentally a dermatitis certainly holds true for the majority of cases. Jadassohn stressed this view when he described his case of anetodermia erythematodes. This view was also stressed later by Finger and Oppenheim. Nearly all the cases described under the title of anetodermia erythematodes or dermatitis atrophicans maculosa have the clinical character of an inflammatory lesion at the outset. They begin most often with a macula or papule, occasionally with a wheal or

bulla and only later, through progressive definite stages, do they become transformed into the characteristic lesions of macular atrophy.

There still remains a group of cases, however, which, in so excellent a monograph as that of Finger and Oppenheim, has been either neglected or erroneously, we believe, regarded as fibroma molluscum. These cases appear either independent of or associated with syphilis and present the unusual phenomenon of atrophic lesions appearing without any preexisting clinical lesion that shows evidence of inflammation. These cases are not numerous and have been described under titles that do not suggest macular atrophy, most often under the title "multiple benign tumor-like new growths of the skin." The first case of this type was reported by Schweninger and Buzzi. In this country the first case was described by Pusey. Only about a dozen identical cases have been observed, mostly in American and English literature. The study of these cases reveals that in the Schweninger and Buzzi disease one is dealing with nothing else than a type of macular atrophy of the skin, a view expressed by the original authors and confirmed by Sweitzer, Stelwagon and Dowling.

In studying the cases of this group, we find a great clinical similarity between them. In anetodermia erythematosa, as already stated, the onset and course of the disease may be so varied that only the end-stage permits one to recognize its true character. The Schweninger and Buzzi group, on the other hand, run a parallel course from onset to termination. In no case recorded is there a history or clinical observation of a beginning reddish papule or macula or any other sign of inflammatory onset. The so-called primary lesion, as we observed in our case, is a small, soft, papular elevation the color of normal skin or somewhat whiter. This lesion permits of flattening out by the palpating finger, and when one stretches the skin it disappears. This primary lesion grows peripherally, always retaining a round or oval character. Numerous lesions of this type tend to appear in a given area. As sites of predilection may be mentioned the shoulders, interscapular region, extensor surfaces of the upper part of the arms and the sides of the thorax, following here the lines of cleavage of the skin (Schweninger and Buzzi, Sweitzer, Stelwagon, Chargin and Silver). While these are common locations, the disease was observed on the ear by McKee, and Kissmeyer found it limited to the upper part of the arms. A tendency to grouping is noted in many of the cases recorded, and although the lesions may be set close together there is no tendency to coalesce. In number they may vary to a wide extent. In our own case, there were more than 200 lesions. Stelwagon's case showed from thirty to forty. Kissmeyer noted thirty-two lesions. The lesion becomes pea-sized and mostly soft, but isolated lesions may be firm. This firm-

ness is usually due to the deposition of fat which fills the baglike projections. The soft and raised lesions which are always present are extremely characteristic of this group. Because of their tumor-like appearance, they resemble to a marked degree the lesions of von Recklinghausen's disease, and have often been confused with the latter (Temesvary's case and others). The palpating finger now falls into a distinct sharply marginated depression. The baglike elevations soon show a tendency to cave in. This was distinctly shown in our case (fig. 1) in the middle of the arm. The surface may become folded as if there were an excess of skin in the affected area. The fact is that the skin, due to the marked loss of elastic tissue (the fundamental pathologic process), behaves like an overstretched rubber band. This end-stage is the same in all the groups of the macular atrophies: a flat, slightly depressed or raised, distinctly atrophic area with a cigaret paper-like surface. The color is usually white, slate or bluish white. The hair follicles surmounting the affected skin are enlarged, and lanugo hairs are present.

There are a number of typical cases of the Schweninger and Buzzi type of macular atrophy recorded in the literature that are associated with syphilis, and these are discussed under the heading "Syphilis and Macular Atrophy."

We may thus summarize that the Schweninger and Buzzi type of the disease is a distinct group of macular atrophy, that it is observed independent of or associated with syphilis and that in either instance the beginning lesion is, clinically at least, noninflammatory.

Syphilis and Macular Atrophy.—Macular atrophy in the syphilitic patient is by no means rare. The condition was recognized and described long since by Wilson, Fournier, Balzer, Nivet, Herrscher and others. It is observed in two forms: Either the atrophy is merely associated with syphilis or it replaces a prior syphilitic lesion. The more common occurrence is the latter. Nivet, Pelagatti, Alexander and Zenger and others were able to observe the actual replacement of papular syphilitic lesions by macular atrophy. On the other hand, Mibelli stressed the fact that although his patient was syphilitic he could neither from the history nor from the course of the development convince himself that the atrophic spots developed at the site of a syphilitic lesion.

The transformation from a syphilitic papule to atrophy includes various stages, and usually requires less than two months. The course is as follows: The papule becomes flat and is gradually transformed into a livid red plaque with peripheral pigmentation. The lesions are now on a level with the rest of the skin and lose their infiltration. On palpation the skin is found to be thinner and weaker than normal. It soon becomes concave; the color changes to violet and then to a shiny

white. The surrounding pigmentation becomes less marked as the atrophy becomes more manifest. We can therefore differentiate three stages: (1) infiltrated papules or tubercles, (2) a change in color and (3) atrophy.

Although atrophy usually appears during the second or third year of the syphilitic infection, that is, during the earlier period of the infection, the exceptions are numerous. In Nivet's case, macular atrophy replaced a late syphilitic papular eruption. In Alexander and Zenger's case, tuberose infiltrations resulted in macular atrophy. Even very long intervals have been observed: Adamson, ten years; Leven, eighteen years, and Sidlick, twenty-seven years after infection; Leven also reported a case of congenital syphilis twenty-nine years old.

While macular atrophy usually follows papular lesions, it has also been observed replacing macular lesions (Balzer's case). The localization necessarily varies according to the location of the syphilitic eruption which it replaces, but is usually on the trunk, extremities and abdomen. However, lesions have been observed on the head by Nivet, on the thighs by Polland, on the breasts by Oppenheim and on the face by Sidlick and Strauss. The size of the lesions may vary from that of a pea to that of a five cent piece.

The cases in which macular atrophy does not replace syphilitic lesions but in which it coexists with these lesions are, for the most part, typical of the Schweninger and Buzzi type of the disease. Numerous instances are recorded. As examples may be mentioned the cases of Dowling, Lapowski, Mibelli, Wise, Pardo-Castello, Fox and Morris. Mibelli was the first to lay stress on the fact that the atrophic lesions did not replace syphilis.

The period intervening between the syphilitic infection and the appearance of macular atrophy in this group of cases varies. In Dowling's case the primary lesion occurred twenty-four years previously, but the macular atrophy was likewise of long duration. In Lapowski's case the history dated back ten years. Wise presented two cases in colored women. The first had a primary lesion three years previously and six months thereafter macular atrophy developed. The second patient had gummas on the thigh and had a history of a very old infection.

Secondary Macular Atrophy on the Basis of Tuberculosis, Folliclis, Ecthyma, Typhoid, etc.—Although secondary macular atrophy is commonly seen in association with syphilis, it is also observed in the wake of other diseases (Adamson, Fabry and others). One would expect to find it more often in tuberculosis, but in the literature there are very few cases recorded under the heading of atrophy on the basis of that disease. In leprosy the macular type of atrophy is more frequently

observed, and Oppenheim named it dermatitis atropicans leprosa. There are a few recorded cases of macular atrophy following ecthyma, acne, typhoid and, more rarely, other diseases.

Mixed Group.—In this category we include cases of macular atrophy in association with acrodermatitis chronica atrophicans or the diffuse type of atrophy. We were able to collect twenty-three such cases, which demonstrates the comparative frequency of this group. In most of the cases the diffuse atrophy preceded the macular atrophy. Their association would seem to point to a common etiology. It is interesting to note that the macular atrophic areas are frequently found within the larger atrophic areas. In twenty-three cases, Jessner observed macular lesions within the areas of acrodermatitis twelve times, and outside the latter only three times. Similar observations were made by Lengyel, Pautrier and Walter, Urbach and Nobl.

Clinically the type of macular atrophy corresponds with the picture of anetodermia. The lesions are fewer in number, usually from twenty to twenty-five (Golomb and Fajngold). The disease is commonly chronic. In Fischl's case the atrophy began forty-one years previously. In Schramek's case the acrodermatitis was of thirty years' standing; the macular atrophy, however, appeared only two years previously.

Doubtful Cases; Differential Diagnosis.—As "doubtful" we classify those cases in which the history, clinical appearance, course and, in some instances, pathology show such variation from the type as to make their inclusion in one or another group of the macular atrophies uncertain. Indeed, in many of the cases the authors themselves were often in doubt whether their cases belonged to the atrophies under discussion. In this group it will be convenient to discuss points in the differential diagnosis of diseases that bear a resemblance to macular atrophy.

Perhaps, the most frequent confusion is with lupus erythematosus as demonstrated by the cases of Nielsen, Little, Smith and others. As already pointed out, the group of anetodermia and lupus erythematosus is frequently confused, not alone because of the localization on the face, but also because of the configuration of the lesions, chronic course, sex of the patient and apparent similarity in the type of atrophy. Yet there are definite points of distinction between them. The adherent scale, patulous openings, telangiectasia, pigmentation, course and the different pathologic picture in lupus erythematosus should suffice to differentiate the two diseases. A striking point in differential diagnosis is the color of the atrophic lesions in macular atrophy. In many instances, especially in lesions located on the face, the color of the atrophy is bluish white and totally unlike that of lupus erythematosus. That it is not always possible to make a differential diagnosis is amply demonstrated by Thibierge's classic case.

A common error is the confusion of macular atrophy in its later stages with morphea or white spot disease. This was especially the case among the early authors who depended largely on clinical evidence, but the error is not uncommon even among recent writers. The cases of Abraham, Taylor, Bronson, Duhring, Liveing, Phillips, Sweitzer and others, recorded as atrophia cutis, macular atrophy, and other conditions, can easily be recognized as types of scleroderma.

Morphea differs from macular atrophy in that the lesions frequently show a pinkish border, and later the lesions become white or ivory white and are usually firm, leathery or brawny, with surrounding pigmentation. In white spot disease, the lesions are small, snow or ivory white, smooth and glistening, with a peripheral band of lilac or bluish color. The palpating finger feels an induration. These points should serve to differentiate these diseases from macular atrophy.

Confusion has arisen because of the similarity of the lesions of macular atrophy, especially the more solid ones, to keloid, in certain aspects. As evidence may be mentioned the cases of Jadassohn, de Amicis and others. But here, too, there are characteristic points in differentiation. Keloids are very firm fibrous tumors of varying size, with a smooth surface. They are round, bandlike and occasionally forked. They usually appear after trauma (burns, etc.) or as the end-stage of certain diseases, such as acne. They also have a tendency to recur after removal. These factors should be sufficient to differentiate the two diseases.

Because of the total absence of inflammatory changes and because of the similarity of the bluish macules and herniated lesions, the Schweninger and Buzzi type has been often confused with von Recklinghausen's disease. Other characteristics of the latter, however, such as small pigmentary spots in the form of ephelides, larger pigmented areas with a café-au-lait color and solid tumors, some of which are occasionally pedunculated, with disturbances of the central nervous system, should be sufficiently characteristic not to confuse the two.

That leukoderma occasionally resembles macular atrophy is proved by the case presented by Parounagian, but it should not be difficult to recognize the true character of one or the other. Leukoderma of the syphilitic variety is frequently limited to the neck and shoulders, shows no atrophy, is perfectly smooth and is frequently associated with early syphilis.

Pemphigus or other bullous dermatoses can be confused only in their end-stage. Here the history, the development, the course, the presence of oral lesions, pigmentation, etc., should suffice to avoid an error.

The early stage of anetodermia has been confused with syphilis, toxic eruptions and sarcoids. These diseases need only be borne in mind to enable one to make a correct diagnosis, because their similarity is only superficial, they are not alike in onset, course and termination.

PATHOLOGY

In tracing the views with regard to the pathology of this disease, one finds that the early writers were of the opinion that the process was due chiefly to a stretching of tissue. Balzer (1897), who never examined a biopsy but based his views on the work of Troisier and Menetrier, compared the process to striae gravidarum, and assumed that it was due to an incomplete break in the continuity of the connective and elastic tissues with incomplete tearing and healing without scar. Accordingly, he did not regard it as an atrophy, but as a stretching in circumscribed areas, and named it "vergéture arrondie." Darier (1897) was of the opinion that in macular atrophy there was a rupture of the elastic network of the skin, exactly as in striae, and he considered the process a pseudo-atrophy. Thibierge expressed himself in a similar vein. Chibert, who studied a case of Danlos, also observed a change in the elastic network. Neither Pellizzari nor Oppenheimer, who reported cases in 1884 and 1891, respectively, mentioned a loss of elastic tissue. Jadassohn, Schweninger and Buzzi, whose papers appeared in 1891, were the first to study the pathology in detail and to recognize the essential nature of the disease. Later, the pathology of the various types of macular atrophy was studied by Finger and Oppenheim, Bohač, Pelagatti and others.

The histologic characteristics may be summarized as follows: In the first stage, the epidermis is largely intact. There is a mild grade perivascular infiltration composed largely of round cells. There is a mild grade loss of elastic tissue chiefly limited to the areas of the vessels. In the second stage, the characteristic feature is the circumscribed loss of elastic tissue which begins in the upper cutis and midcutis and spreads upward along the vessel ramifications. When the process is complete an elastic zone is produced which is cone-shaped, with its base toward the epidermis. Other features of this stage are narrowing of the prickle cell layer and effacing of the papillary body. In the third stage, the evidence of collagenous degeneration becomes more manifest. Especially characteristic is the deposit of islands of fat high up where they are not found normally. The loss of elastic tissue is complete.

The essential and the most pronounced change observed in all types of macular atrophy is in the elastic tissue. The change is a fragmentation, contraction and finally a disappearance of this tissue. This

occurs first in the subpapillary zone. In time, it extends to the papillary body and to the deeper cutis. This elastic change is so characteristic and constant that without its presence a diagnosis of macular atrophy is not justified. Although the most pronounced pathologic manifestation is the change in the elastic tissue, the primary process is evidently vascular. This is recognized by the dilatation of the vessels, edema and perivascular cell infiltration which is directly followed by the disappearance of the elastic tissue. While the inflammatory reaction precedes the destruction of the elastic tissue, complete loss of this tissue may occur without the slightest evidence of inflammatory reaction, and this fact is stressed by a number of authors (Volk, Vignolo-Lutati, Satenstein). On the basis of this occurrence, it was suggested that in addition to the cellular infiltrate to account for the atrophy, toxic substances, whatever their nature, may be assumed to play a rôle in the production of the degenerative process.

From the area of primary vascular involvement, the process spreads upward along the vascular tree so that, in the end, a zone free from elastic tissue is produced, which, as already noted, is cone-shaped with its base toward the epidermis. The most profound change is noticed in the center of the lesions while at the periphery the elastica shows a varying grade of degeneration, the fibers being broken and thick and forming clumps.

Whether the changes in the cutis are early or late, the changes in the epidermis do not necessarily run parallel. Even in markedly advanced cases, the epithelium may be normal, but this coat is usually narrowed and flattened, and the papillae tend to disappear. This change is largely mechanical, being due to pressure from below, though some observers (Gans) think that there is actual degeneration.

While all are agreed on the elastic degeneration as a constant phenomenon, degeneration of the collagen has been stressed by few authors. In this connection the view of Kyrle is of interest. He maintained that for a soft atrophy it is essential that the collagen must take part in the degenerative process. He pointed out that the clinical picture of atrophy cannot occur so long as the collagen remains normal. As proof he pointed to cases in which there is marked degeneration of the elastic tissue, in fact, complete absence of this tissue without clinical evidence of atrophy. Oppenheim, Leven, Benjamowitsch and Maschkilleisson, Mibelli and others called attention to collagenous degeneration in cases examined by them. Oppenheim stressed the tinctorial change (basophilic collagen) in the second and third stages as described by him, but he found no structural degenerative changes. Benjamowitsch and Maschkilleisson were able to demonstrate similar changes in their first case. They found in the collagen many basophilic islands

made up of small clumps which did not show elastin staining qualities. They also found the presence of collastin.

Degeneration of the adnexa is not marked, though it is present to some extent in many cases. Indeed, in some reports it is noted that there was marked degeneration of the sebaceous glands and hair follicles. The degeneration of the sweat glands is less often noted though it was reported by some and was marked in our own case.

The cellular infiltration is principally made up of small round cells (lymphocytes) with occasional mast cells and, in some cases, plasma cells. It is chiefly observed surrounding the blood vessels but occasionally it is also marked around the appendages.

The changes in the blood vessels are few. The elastic layer in the blood vessels may or may not be affected. A frequent observation is hypertrophy and hyperplasia of the endothelial lining.

Oppenheim has pointed out that in the final stage of this disease one encounters a deposit of fat in the upper layers of the cutis, sometimes reaching high up. Benjamowitsch and Maschkilleisson have found this fat bolster in early lesions in their cases. As previously stressed, the determination of the origin of one type of macular atrophy from another on the basis of a study of the pathologic process alone is, as a rule, impossible. This holds true when the atrophy is fully developed. In the early stages, when the transformation from a syphilitic lesion to atrophy is taking place, such a determination ought to be possible. In the literature one finds that the views vary. Heuss stated that it is possible to differentiate the pathologic changes of anetodermia postsyphilitica from those of other types of macular atrophy. He contended that in syphilitic macular atrophy there is an alteration in the endothelium and that the elastic tissue is crowded out (Verdrängung) but not lost. Leven contended that vascularization and an increase in collagen differentiates the two. Pelagatti expressed the view that no doubt in early stages of macular atrophy, when the syphilitic lesion is recent, such a differentiation is possible. It would appear that the perivasculitis and endovasculitis should serve to identify the syphilitic origin of the macular atrophy, but only early in the stage of the disease. On the other hand, Volk remarked that the differentiation between the two conditions is not readily made.

Similarly, in the case of tuberculosis or any other precursor of macular atrophy it is conceivable that the pathology can establish the origin of macular atrophy if the lesion is examined at a very early stage, but later this may be impossible.

On the question of the relationship of the pathologic processes of acrodermatitis chronica atrophicans and macular atrophy, it is of interest to quote the recent views of Pautrier and Diss, who stated that the

processes differ from each other. In macular atrophy, they stated, there is a perivascular infiltration, and the infiltrate is most pronounced in the depths of the cutis. In this zone there is considerable destruction of collagen and elastic fibers. This destruction is responsible for the "adipose tissue hernias" observed in macular atrophy. In acrodermatitis, on the other hand, there is a collection of histiocytes which parallels the surface.

ETIOLOGY AND PATHOGENESIS

In an examination of the theories advanced respecting the etiology and pathogenesis of the atrophies, one finds plausible explanation for certain clinical varieties of the disease. This is particularly true of those types of macular atrophy which follow chronic infectious diseases, like tuberculosis, syphilis or leprosy. But there still remains a large group cloaked in terms like "idiopathic" and "neuropathic" which convey little to our conception of etiology. This has caused authors like Thibierge simply to deny the existence of a primary atrophy, and Vignolo-Lutati to consider macular atrophy as the end-stage of various disease processes and not as a clinical entity.

The views expressed in the literature with regard to etiology and pathogenesis permit of a division into four outstanding theories.

Ehrman assumed a mechanical trauma, with a consecutive inflammation and lymphangitis, on the basis of the clinical observation that acrodermatitis chronica atrophicans occurs frequently in those exposed to repeated trauma, such as fishermen, washerwomen and farmers. The theory of a traumatic origin would not appear applicable, however, to the group of atrophy in which the lesions are macular because of their widespread distribution.

The trophoneurotic theory of Neumann and others assumes that the process takes place in the upper layers of the cutis and ultimately leads to atrophy and disappearance of the papillary body and the cutaneous appendages, as well as to hypertrophy and sclerosis of the fibrous tissue. Oppenheim advanced the theory that the process is due to a congenital defect of the elastic tissue, which makes it vulnerable to influences of pressure or tension such as exist in utero in the case of congenital atrophies, and such as may arise later in life from a variety of causes in the acquired forms of atrophy.

Vignolo-Lutati expressed the opinion that the inflammatory changes need not be clinically perceptible, and he spoke of a "dermatitis silens." This would seem to apply to the Schweninger and Buzzi type, since no one has recorded evidences of inflammatory changes that can be clinically detected.

For a time, the theory of a tuberculous etiology was in vogue. It was based largely on the case of Jadassohn, in which there was tuber-

culosis of the knee, and on Thibierge's case of macular atrophy on the basis of lupus erythematodes. Heuss strongly supported the theory of the tuberculous origin of the disease. Adamson saw a case of lichen scrofulosorum terminate in atrophy, and others reported macular atrophy following tuberculosis, and consequently accepted tuberculosis as a causative factor. Wechselman, Bettman, Fabry and even Oppenheim were of the same opinion. Oppenheim, however, later investigated experimentally the relation of the tubercle bacillus or its toxins to atrophy of the skin, and came to the conclusion that "a specific action of the tubercle bacillus or toxins on the elastic tissue could not be demonstrated *and this despite the fact that the tubercle bacillus has an affinity for elastic tissue.* Tuberculosis cannot be held responsible for the loss of elastic tissue because the elastic fibers disappear independently of cell infiltrations."

That syphilis was and is regarded as an important etiologic factor goes without saying. Certain authors have spoken of a syphilitic macular atrophy (Dowling, Alexander, Adamson and others). There are numerous cases in which macular atrophy appeared on preexisting syphilitic eruptions; of that there can be no doubt. Fournier, Wilson, T. Fox and others saw macular atrophy follow a secondary papular eruption.

Fournier spoke of "leukatrophie cutanée" because of the loss of pigment in the atrophic areas. Balzer thought of a peculiar variety of secondary syphilis which heals with persistent atrophic macules. This syphilid causes also leukoderma atrophicum of the neck and is related to so-called pigmentary syphilis. He suggested the name of "syphilide papouleuse atrophiante." Mibelli regarded macular atrophy as a neurosyphilid in the sense of Unna.

On the other hand, there are cases recorded in which there was either a positive Wassermann reaction, manifestations of tertiary syphilis or only a syphilitic history, and still a well pronounced macular atrophy which, by no stretch of the imagination, could be thought of as replacing syphilitic lesions. In these cases the macular atrophic lesions are found alongside of the syphilitic lesions and persist long after the active lesions of syphilis have disappeared. Mibelli was the first one to lay stress on the fact that in his case the macular atrophy did not replace syphilitic manifestations. It may thus be stated that syphilis of itself and by itself can hardly be regarded as a common cause of macular atrophy, for macular atrophy is rare while syphilis is common. This leads to the thought that when syphilis stands in etiologic relationship, a special disposition of the skin must also be present as an underlying factor. If syphilis had a direct deleterious effect on the elastic tissue, macular atrophy would be much more common. On the other hand,

unlike tuberculosis, syphilis has no affinity for the elastic tissue. Whether the injury of the elastic tissue is brought about in a syphilitic patient via the endocrine-autonomic nervous system (Audry) must be seriously considered. For those cases in which there is an undeniable conection between syphilis and macular atrophy, Oppenheim assumed a weakened resistance of the elastica, congenital or acquired; in these cases syphilis finds a fertile soil for attack. Syphilis can thus be regarded only as a secondary etiologic factor like other chronic infectious diseases, such as tuberculosis (Adamson) and leprosy (Oppenheim). To this day, the various etiologic conceptions are supported or attacked according to the particular observation or inclination of the author. Thus, at the recent dermatologic reunion at Strasbourg (May, 1929), in the discussion on the etiology of the atrophies no new conceptions were advanced.

The endocrine theory advanced by Singer is the most recent. The basis of this theory is a disturbance of correlation between the glands of internal secretion, either directly or by way of the autonomic nervous system. Leszczyński, and particularly Blatt, observed a constant hypofunction of the hypophysis in addition to disturbances of other endocrine glands.

We feel that the endocrine glands play an important part in the pathogenesis of primary macular atrophy. The onset of macular atrophy during pregnancy (Oppenheim, Barner, Temesvary, Chargin and Silver), the frequent occurrence in women during menopause, the occurrence with disturbances of menstruation (Thimm) and the actual finding of a disturbed correlation of various endocrine glands, particularly the hypophysis (Blatt), strengthens this conception considerably. More investigation is necessary, particularly in this direction.

SUMMARY AND CONCLUSIONS

1. Macular atrophy may be primary or secondary. The primary group comprises anetodermia Jadassohn and anetodermia Schweninger and Buzzi. The secondary group includes those cases in which the atrophic lesions replace prior dermatoses, such as syphilis, tuberculosis and leprosy.

2. Two cases of primary macular atrophy are reported: one an example of the Schweninger and Buzzi type, with an unusual complication; the other a case of the Jadassohn type.

3. We regard the Schweninger and Buzzi type of atrophy as a distinct clinical entity and suggest the name anetodermia Schweninger and Buzzi for this condition.

4. In the end-stage all macular atrophies clinically resemble each other. A common characteristic in all is the phenomenon of herniation.

5. Syphilis is frequently—tuberculosis and leprosy less often—associated with primary or secondary macular atrophy.

6. Various theories regarding the etiology and pathogenesis are discussed.

7. In pathology the various groups of macular atrophy show a striking resemblance to each other. The essential and most pronounced changes are fragmentation, contraction and finally disappearance of the elastic tissue.

8. Various classifications are discussed, and a simplified grouping is suggested.

9. Some points in differential diagnosis between the macular atrophies and simulating diseases are discussed.

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ANETODERMIA JADASSOHN WITH URTICARIAL ONSET

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Abstracts from Current Literature

EDITED BY DR. HERBERT RATTNER

SCARLET FEVER: RESULTS OF EXPERIMENTAL RESEARCH. T. TOYODA, J. MORIWAKI, Y. FUTAGI and C. KUROI, Am. J. Dis. Child. **41**:1009 (May) 1931.

Toyoda and his associates working in the Japanese Government Isolation Hospital, found hemolytic streptococci in the throats of 266 patients in an early stage of scarlet fever. Of 119 strains of scarlet fever streptococci, 89.1 per cent were capable of producing Dick toxin. They believe that the scarlatiniform rash produced by scarlatinal streptococcus toxin is identical with the scarlet fever rash and that the scarlet fever rash is caused by streptococcus toxin.

Prophylactic immunization against scarlet fever by means of scarlatinal streptococcus toxin and its anatoxin is of great practical value, and if the immunization is thorough, the morbidity rate is reduced to one forty-third of the previous rate. The rash was generally slighter, and the mortality rate was remarkably lower than for those who were not immunized.

Therapeutically, antistreptococcus toxin serum has reduced the death rate by half. While the development of complications appeared to be more or less reduced, no effect was observed on complications that had already developed.

THE CORRELATION OF THE CLINICAL PICTURE WITH THE OSSEOUS LESIONS OF CONGENITAL SYPHILIS AS SHOWN BY THE X-RAYS. STAFFORD MCLEAN, Am. J. Dis. Child. **41**:1128 (May) 1931.

This article concludes a series of excellent expositions on the correlation of the roentgenologic aspects with the clinical picture of congenital syphilis. In it the author has dealt with the bone lesions found in cases of congenital syphilis accompanied by severe cutaneous lesions, pseudoparalysis, visceral lesions, multiple fractures, cerebrospinal involvement and hydrocephalus. The entire subject has been dealt with quite exhaustively and in a clear manner.

N. P. ANDERSON, Los Angeles.

URTICARIA PAPULOSA: A CLINICAL, SEROLOGIC AND CHEMICAL INVESTIGATION. E. F. CORSON, H. H. PERLAMAN, A. D. WALTZ and R. ASH, Arch. Pediat. **48**:349 (June) 1931.

The authors studied thirty-one cases of urticaria papulosa in an effort to shed some light on the etiology of this not uncommon condition. A careful history as to diet was obtained in each instance. Each patient was tested by the scratch method for food sensitivity. Twenty-one patients reacted negatively to all skin tests. Three reacted markedly to egg, and one showed a slight reaction. Four reacted to cow's milk and one to cheese. In only one instance did omission of the offending food result in apparent relief. A cure appeared to result in this instance. Examination of the stool and urine and a chemical analysis of the blood were done. None of the observations suggested a theory for the cause of this disease.

WADDELL, University, Va. [AM. J. DIS. CHILD.].

CERTAIN ASPECTS OF SYPHILITIC CARDIAC DISEASE. E. P. CARTER and B. M. BAKER, Bull. Johns Hopkins Hosp. **48**:315 (May) 1931.

This paper is a detailed analysis of 100 cases of cardiovascular syphilis and emphasizes the marked incidence of vascular syphilis in the Negro and the high mortality rate as compared to other forms of heart disease. The onset is relatively abrupt, with 10 per cent of the patients giving a history of a previous polyarthritis.

The Wassermann reaction was positive in 92.6 per cent of the cases. The clinical symptoms and physical findings are fully dealt with. In treatment, digitalis is prescribed, and after the acute symptoms are relieved potassium iodide is given in doses up to from 10 to 12 Gm. a day, followed by intramuscular injections of mercury or bismuth in the form of bismuth salicylate (2 cc. of a 10 per cent solution in olive oil). After an adequate cardiac reserve is built up, the use of an arsenical preparation is cautiously begun by the intravenous injection of neoarsphenamine in doses of from 0.1 to 0.2 Gm., or bismarsen given intramuscularly when intravenous injections of arsenicals are contraindicated.

ANGINA AGRANULOCYTICA AND ITS TREATMENT. L. P. HAMBURGER, Bull. Johns Hopkins Hosp. **48**:339 (May) 1931.

In fifteen cases of agranulocytic angina, only one occurred in men; eleven of the patients were 40 years of age or more; all complained of sore throats and presented oropharyngeal lesions varying from the picture of follicular tonsillitis to necroses involving the fauces and oral mucosa. Three exhibited areas of cutaneous gangrene. The primary leukocyte count in this series averaged 900, though the individual estimates ranged from 0 to 2,300; the average percentage of polymorphonuclears was 9 with a minimum figure of 0 and an initial maximum of 28.

Hamburger distinguishes a fulminating type of the disease, a markedly severe type, a relapsing form, and finally a subchronic type. No chronic form of the disease was seen. The etiology is still in doubt but it is suggested that the primary disorder lies in a depressed function of the granulocytic mechanism of the bone marrow with a consequent agranulocytic leukopenia. Hence there develops lack of defense against infection.

Seven of the fifteen patients recovered. Treatment consisted in blood transfusions (citrated blood); roentgen ray irradiation (1/20 erythema dose) of the bones, and local spraying of the oropharyngeal lesions with a saturated solution of potassium chlorate followed by swabbing with a solution of copper sulphate (10 grains [0.65 Gm.] to the ounce). Intramuscular injections of leukocytic extract may also be given.

ROENTGENOTHERAPY OF ANGINA AGRANULOCYTICA. C. A. WATERS and W. B. FIROR, Bull. Johns Hopkins Hosp. **48**:349 (May) 1931.

In the plan of roentgenotherapy given by the authors, the lower extremities, pelvis, upper ends of the humeri and shoulder girdles were irradiated in the course of three or four treatments. Voltage values of 200,000 with aluminum and copper filtration, both separately and combined, were used. The measurement of the dosage was effected by the employment of a dosimeter reading in roentgen (R) units, adopting 600 units as the erythema dose. The dosage was 1/20 erythema dose.

N. P. ANDERSON, Los Angeles.

DERMATITIS VENENATA DUE TO CHRYSANTHEMUM LEAVES. MARVIN B. GOLDSTEIN, J. A. M. A. **96**:1680 (May 16) 1931.

The patient was an employee in a greenhouse in whom a generalized dermatitis was found to be due to contact with chrysanthemum leaves. This is thought to be the first report of dermatitis venenata from this source.

THROMBO-ANGIITIS OBLITERANS (BUERGER). SAMUEL SILBERT and MAE FRIEDLANDER, J. A. M. A. **96**:1857 (May 30) 1931.

A study of the basal metabolic rates in fifty cases of thrombo-angiitis obliterans revealed an average reading of minus 16.2 per cent. A group of twelve

normal men who were heavy smokers had an average rate of minus 15.1 per cent. Another group of ten men with circulatory impairment due to atherosclerosis had an average rate of plus 9 per cent.

TREATMENT OF DEMENTIA PARALYTICA. CLARENCE A. NEYMANN and MICHAEL T. KOENIG, J. A. M. A. **96**:1858 (May 30) 1931.

This is a comparative study of therapeutic results obtained in a series of clinically similar cases of dementia paralytica in which the patients were treated with malaria, sodoku and diathermy. Diathermy is considered the best because with this form of therapy the remission and improvement rate is best, the death rate is nil, in many cases ambulatory treatment can be given and there are not so many contraindications as in the other forms of fever therapy. The serologic changes produced by any form of hyperpyrexis do not coincide with the clinical changes.

CASE OF THALLIUM POISONING FOLLOWING PROLONGED USE OF A DEPILATORY CREAM. W. S. DUNCAN and E. H. CROSBY, J. A. M. A. **96**:1866 (May 30) 1931. REPORT OF THALLIUM ACETATE POISONING FOLLOWING THE USE OF KOREMLU. SIGMUND S. GREENBAUM and JAY FRANK SCHAMBERG, J. A. M. A. **96**:1868 (May 30) 1931.

Three more cases are reported of thallium poisoning following the use of "Koremlu," a depilatory cream. In one case there was no loss of hair but a severe peripheral neuritis, and toxicity which required a therapeutic abortion.

ERYTHEMATOUS GROUP OF SKIN DISEASES WITH ESPECIAL REFERENCE TO ABDOMINAL PAIN. I. RIDGEWAY TRIMBLE, J. A. M. A. **96**:2010 (June 13) 1931.

Fifteen cases are described of a syndrome characterized by skin lesions of purpura, erythema and urticaria, abdominal or arthritic pain, angioneurotic edema and albumin, blood and casts in the urine. Thirteen of the patients were children. The most constant observations were the cutaneous manifestations. Purpura was present in fourteen cases, erythema in six, angioneurotic edema in six and urticaria in five. The cases are described in detail and are differentiated from other hemorrhagic diseases. In many of the cases the similarity to allergy was striking.

HEMORRHAGIC ENCEPHALITIS AFTER NEOARSPHENAMINE. JOHN W. BRITTINGHAM and THOMAS PHINIZY, J. A. M. A. **96**:2021 (June 13) 1931.

The patient became ill immediately after an injection of 0.6 Gm. of neoarsphenamine. She had had four injections two months previously, and the first injection of the second course just one week before. There was a sudden appearance of severe headache, vertigo, excitation and rapidly developing coma. Two extraordinary features were found at autopsy. In addition to multiple hemorrhages into the brain and other viscera, microscopic examination disclosed fat embolism with widespread distribution of fat in the capillaries, and the erythrocytes resembled in every detail those of sickle cell anemia.

LOSS OF VIRICIDAL PROPERTY IN SERUMS FROM PATIENTS WITH HERPES AND ENCEPHALITIS. FREDERICK P. GAY and MARGARET HOLDEN, J. A. M. A. **96**:2028 (June 13) 1931.

The authors studied serums from a group of patients with herpes simplex; from a group with the chronic encephalitis syndrome, and from a third control

group of patients with no herpes or encephalitis. Their results indicate that the usual neutralizing action of normal human serum on herpes virus is slightly reduced on the average in herpes that is recurrent, and distinctly reduced during a primary attack. The serums from patients with acute epidemic encephalitis show loss of power to neutralize herpes virus. This loss occurs less frequently in chronic cases, though it is still in marked contrast with control cases. The results, in general, indicate a relationship between epidemic encephalitis and herpes simplex, and offer a presumptive diagnostic test for obscure cases of epidemic encephalitis.

ROENTGEN CARCINOMA AND SARCOMA. FREDERICK W. MULSOW, J. A. M. A. **96**:2030 (June 13) 1931.

A case is reported in which sarcoma developed on the index finger, and one year later, carcinoma developed on the middle finger of a physician whose hand had been repeatedly exposed to roentgen rays. There was no evidence of metastases after eight months.

ETIOLOGY OF ACRODYNIA. W. WESTON, JR., South. M. J. **24**:378 (May) 1931.

Three cases are reported, the analyses of which suggest that acrodynia is primarily a deficiency disease. Infection is easily superimposed and has a synergistic action on the symptoms of the disease. The author thinks that tonsillectomy, which has been proposed as a specific cure for this disease, is definitely contraindicated. The symptoms and various theories of etiology are briefly but excellently reviewed.

LEUKOPLAKIA BUCCALIS. HOWARD KING and C. M. HAMILTON, South. M. J. **24**:380 (May) 1931.

This is a statistical analysis of eighty cases taken from private practice. The authors found the use of tobacco to be the most frequent etiologic factor. Syphilis played only a minor role as a causative agent. In a few cases it was the sole cause. Teeth and ill fitting dentures were found to be the exciting agents in a small percentage of cases. Only five of the eighty cases were malignant. The subject was studied also from many other angles, with the conclusion that the majority of cases of leukoplakia represent a harmless condition as to both origin and eventual outcome.

PITYRIASIS SIMPLEX CAPITIS. RUSSEL FIELDS, Virginia M. Monthly **58**:118 (May) 1931.

Fields advocates rather radical measures in the treatment for seborrhea capitis, both for the severe types and for the persistently recurring milder type. He recommends a dose of x-rays, ½ skin unit over five areas, which is repeated in one week, and followed in ten days by ⅛ unit over the same areas. A month later the treatments are repeated if necessary. He has had uniformly good results with this method.

H. RATTNER, Chicago.

HEREDITARY ECTODERMAL DYSPLASIA. JEAN SMITH, Proc. Roy. Soc. Med. **24**:323 (Jan.) 1931.

A boy, aged 13 months, was brought to the hospital because of his resemblance to an older brother. The chief characteristics were: (1) peculiar facies, (2) sparse fair hair, (3) dilated scalp veins, (4) thick everted lips, (5) a depressed nasal bridge, (6) large projecting ears, (7) absence of sweat glands, (8) dental abnormalities, as shown in a roentgenogram and (9) a tendency to attacks of high

pyrexia unassociated with any constitutional disturbance. On the eleventh day after birth, his temperature reached 108 F., although the only explanation found was possibly too much clothing.

WILLIAMSON, New Orleans [AM. J. DIS. CHILD.].

HODGKIN'S DISEASE, WITH UNUSUAL ERUPTION. HENRY MACCORMAC, Proc. Roy. Soc. Med. **24**:678 (April) 1931.

A man, aged 40, presented a collar of enlarged glands around the neck, and enlarged glands were observed elsewhere. The spleen was easily palpable. Roentgen examination showed heavy root shadows with accentuated striation throughout the lung fields, and some shadowing over the apex of the right lung as is found in tuberculosis. The blood count was as follows: red blood cells, 6,420,000; hemoglobin, 114 per cent; white blood cells: polymorphonuclears 72 per cent; lymphocytes, 21 per cent; large mononuclears, 3 per cent; eosinophils, 3 per cent; mast cells, 1 per cent. There was thus evidence of some degree of polycythemia, but nothing indicating any phase of leukemia. One of the enlarged glands removed for microscopic examination showed loss of follicular structure with numerous large lymphocytes suggesting a lymphosarcoma of chronic type. The Wassermann reaction was completely negative. The clinical picture, regarded as a whole, resembled either Hodgkin's disease or a chronic lymphosarcoma. The interpretation of the rash was therefore of some importance in relation to the diagnosis. The eruption developed suddenly in November, 1930, after a course of deep roentgen therapy. It was observed principally over the trunk, was profuse and consisted of small erythematous and pigmented patches, lichenoid papules and numerous scattered purpuric spots. Although it did not altogether correspond with the better known forms of pseudolymphanids, its general aspect, and especially the purpuric elements, suggested a relationship to this group, to which, unless it represented an independent condition, it appeared to belong.

MYCOSIS FUNGOIDES WITH PAPILLOMATOSIS OF THE AREOLAE. M. SIDNEY THOMSON, Proc. Roy. Soc. Med. **24**:679 (April) 1931.

An unmarried woman, aged 39, first noticed some overgrowth of the left areola and nipple about three years before presentation. The right breast began to show similar changes nine months later. Both lesions caused some irritation and were "rubbed till sore." A diagnosis of Paget's eczema had been made. The patient was first seen in May, 1929; the condition of the breasts was then exactly as it was at the time of presentation. At the same time there was observed a very slight and indefinite dermatitis of the legs and arms, which was attributed to the mild xeroderma present. She was admitted to the hospital, and pathologic investigations were made with negative results. She was not seen again until December, 1930, when she stated that a rash had appeared on the abdomen three months before. The condition then seen led to the immediate diagnosis of mycosis fungoides because of its general aspect, infiltration, the presence of islands of apparently normal skin, the very marked itching, which was causing insomnia, and the typical red scaly condition of the scalp. Biopsy and the results of the first exposures to roentgen rays would seem to confirm the diagnosis.

KAPOSI'S IDIOPATHIC MULTIPLE SARCOMA, OF TWENTY YEARS' DURATION. LOUIS FORMAN, Proc. Roy. Soc. Med. **24**:684 (April) 1931.

A man, aged 58, gave a history of the appearance of swellings on the dorsal regions of the feet, spreading up to the knees, which had begun twenty years previously. The hands and the forearms were affected at a much later date. There was hyperkeratosis of the palms and soles. The skin of the feet and legs was

purplish, thickened and crenated, and that of the legs was adherent to the tibia, owing to atrophy of the subcutaneous layer. On the backs of the feet there were numerous soft tumors of varying size up to that of a pigeon's egg. These were shown, on microscopic examination, to be composed of dilated lymphatic vessels. The patient complained of limitation of movement of the left knee due to the contracture of the involved skin behind it. The skin of the dorsum of the hands was purplish and infiltrated. A similar area of infiltration was seen on the front of the left forearm. The general health was unimpaired, and there was no evidence of visceral deposits. Roentgen treatment was given ten years previous to examination. Microscopic examination of a section of the indurated area on the forearms showed some acanthosis and hyperkeratosis. The corium was fibrotic, and contained dilated thin-walled capillaries with collections of fibroblasts around them. The disease showed a great tendency to spontaneous cure.

W. H. Guy, Pittsburgh.

The Clinical Interpretation of the Intradermal Tuberculin Reaction. Alan Moncrieff, Quart. J. Med. **24**:153 (Jan.) 1931.

The author made a critical study of the clinical significance of the Mantoux test in 206 children at the Hospital for Sick Children, Great Ormond Street, London. The ages varied from a few weeks to 12 years. The significance of the test is discussed in relationship to the clinical diagnosis in many instances. The value of a negative reaction is reduced by the possibility of several fallacies: 1. The tuberculin may not be potent. 2. The injection may be made subcutaneously instead of intradermally. 3. The patient may belong to the small group in which bovine tuberculin is necessary to obtain a positive reaction. 4. The patient may be in a state of acute tuberculosis or of anergy, such as exists during measles. A positive test may not (though it usually does) mean that the patient has been infected with tuberculosis. It is difficult to state at what age a positive reaction becomes clinically significant in the diagnosis. The author believes that even in very young children it should not be allowed to establish the diagnosis, but should merely be taken as a piece of evidence.

Bradford, Rochester, N. Y. [Am. J. Dis. Child.].

Pathogenesis and Physiology of Herpes Zoster. G. Marinesco, Ann. de dermat. et Syph. **2**:641 (June) 1931.

The hypothesis of a specific virus for herpes zoster is supported by the following facts: 1. Several investigators are cited who have successfully transmitted the virus of zoster to the cornea of the rabbit. 2. Other investigators have succeeded in producing zosteriform eruptions in human beings by inoculation of the virus. 3. Microscopic verification has been obtained in the affected tissues. The so-called "zoster corpuscles" are regarded by many as specific. These inclusion bodies are found in the epithelial cells. The nucleus, penetrated by the zoster virus, responds by the formation of a zone of reaction that envelops the pathogens; this "zone of reaction" represents the zoster corpuscle. 4. Immunity reactions have been obtained with the serum of patients. A specific antibody has been repeatedly demonstrated in the serum of patients with zoster and even in convalescents.

The author believes that all true cases of herpes zoster are due to a specific virus, and that the cutaneous lesions do not develop consecutive to a lesion of the spinal ganglion, thus representing a trophic disturbance, but are due to the appearance of this virus on the skin itself at the level of the affected region, the skin being the portal of entry whence the virus travels from the nerve endings along the nerve sheaths back to the spinal ganglion.

Ulcers of the Leg and Insulin. Jean Gaté and Phillipe Barral, Ann. de dermat. et syph. **2**:665 (June) 1931.

The authors sought to determine the influence of insulin on chronic ulcers of the leg. Fifteen units were given daily, and the patients who responded were given the injections until cicatrization was complete. Nineteen cases are reported. There were six failures; three patients could not be followed up, and eight cures resulted. One patient with a proved case of syphilis had a large ulcer of the leg that had proved refractory to intensive antisyphilitic treatment; however, immediate improvement began when insulin therapy was added to the antisyphilitic measures, and continued until the ulcer was entirely healed. Another patient with a large varicose ulcer responded best when given dextrose per os along with the insulin. After reviewing other methods of treatment, the authors concluded that insulin has a definite place in the treatment for ulcers of the leg, not only in those patients in whom there is difficulty in the metabolism of carbohydrates, but also as an adjuvant measure in cases due to syphilis, varicosities, etc.

Indirect Application of Roentgen Rays in the Treatment of Alopecia Areata. Giovanni Truffi, Ann. de dermat. et syph. **2**:684 (June) 1931.

Eight patients with alopecia areata were treated by means of roentgen rays applied over the cervical spine. Six patients responded, with total regrowth of hair. The other two did not respond. The author contends that these two failures do not invalidate the efficacy of the method; they merely show that it is not applicable to all cases, which is likewise true of other methods, such as sympathectomy. The mode of action is probably the same as that of sympathectomy, namely, the provoking of a vasodilatation and stimulation of regenerative processes. The regrowth of hair is stimulated only in the region corresponding to the territory of innervation of the zone irradiated.

Professional Anaphylactic Eczema from Dyed Fur. Hemoclastic Crisis. Gougerot and Poulain, Bull. Soc. franç. de dermat. et syph. **38**:762 (May) 1931.

Gougerot and Poulain report that a patient with occupational eczema in whom dyed fur was shown to be the causative irritant was given scratch and intradermal tests with the offending agent, following which a hemoclastic crisis developed. Examination before the test proved the arterial tension to be 125 systolic and 85 diastolic; erythrocytes numbered 3,500,000 and leukocytes, 6,000. Following the test the arterial tension fell to 100 systolic and 65 diastolic and the number of leukocytes to 4,500. At the same time the cutireaction was slightly red and edematous but there was no local eczema. On later observation, the primary condition was found to be improved with change in occupation.

Transitory Amblyopia Following Intramuscular Injection of an Oil-Soluble Salt of Bismuth. Dupuy-Dutemps, Burnier and P. Blum, Bull. Soc. franç. de dermat. et syph. **38**:767 (May) 1931.

A case is presented in which, following the intramuscular injection of an oil-soluble preparation containing 8 cg. of metallic bismuth, amblyopia suddenly supervened, lasting two days, with complete recovery of function. Subsequently, transient weakness of the upper part of the right arm developed. The presenters attributed both phenomena to a spasm of the posterocerebral arteries.

MEDIOFACIAL PIGMENTARY DERMATOSIS. SÉZARY, CIVATTE, LEFÈVRE and COMBE, Bull. Soc. franç. de dermat. et syph. **38**:770 (May) 1931.

Since it is always difficult to secure a biopsy in this condition, because of its location on the face, the particular interest of this case report lies in the histologic study made. The section revealed two outstanding phenomena: (1) the presence of chromatophores in great abundance, especially grouped about the pilosebaceous infundibulae, which explains the punctate pigmentation seen under the diascope, and (2) a tendency toward atrophy of the epidermis, not perceptible to clinical examination, but clearly revealed by the microscope. The authors think that these features are sufficient to differentiate the peribuccal pigmentary dermatosis of Brocq from lupus erythematosus, seborrheic dermatitis and the reticulated pigmentary poikiloderma of Civatte. [This should be of interest in connection with the recent report of several cases by Ormsby and Ebert (ARCH. DERMAT. & SYPH. **23**:429 [March] 1931), their report lacking only a histologic study. D.T.G.]

GRANULOMA ANNULARE. MILIAN and L. PÉRIN, Bull. Soc. franç. de dermat. et syph. **38**:776 (May) 1931.

A clinically typical case of granuloma annulare showed histologically a tuberculoid structure of unusual distinctness, which is an exceptional finding in this condition. The authors pointed out, however, that although this should not be regarded as a decisive argument in favor of the tuberculous origin of granuloma annulare, it should be accepted as sufficient evidence for including the disorder in the tuberculid group.

ADIPOSOGENITAL SYNDROME WITH CONGENITAL SYPHILIS. LOUSTE, LÉVY-FRANCKEL and JUSTER, Bull. Soc. franç. de dermat. et syph. **38**:800 (May) 1931.

A classic case of dystrophia adiposogenitalis is presented because the patient also had congenital syphilis, and the question is raised whether syphilis might not be incriminated in the etiology of this syndrome.

FOUR CASES OF NICOLAS-FAVRE'S DISEASE TREATED WITH INJECTIONS OF GLYCERIN. M. PINARD and P. ROBERT, Bull. Soc. franç. de dermat. et syph. **38**:815 (May) 1931.

Levaditi found that the encephalitis produced in apes by inoculation of the pus from lymphogranulomatosis inguinalis and transmissible from ape to ape in series, was interrupted by immersing the brain in glycerin. It occurred to these authors that if glycerin manifested such a sterilizing action in vitro, perhaps it could be used therapeutically in vivo. Accordingly, daily injections of sterile glycerin into the affected regions were made in four subjects. The results were excellent, the course of the disease being considerably shortened in each instance. This simple method is therefore greatly to be preferred over more complicated procedures, such as radiotherapy, surgery and electrocoagulation.

EXPERIMENTAL RESEARCHES ON SCABIES. SÉZARY, DUCÓURTIOUX and FELSENSWALB, Bull. Soc. franç. de dermat. et syph. **38**:820 (May) 1931.

Are the cutaneous lesions produced by the Acarus scabiei due to the inoculation of a toxin? Poison-secreting glands have never been identified in this parasite. But if the eruption could be reproduced by intradermal inoculation of an extract prepared from the body of the parasite itself, the contention would be proved. This was attempted on twenty-five subjects, with totally negative results.

GANDY, Houston, Texas.

THE NONPROTEIN NITROGEN CONTENT OF THE SKIN IN PRURIGINOUS DERMATOSES AND PSORIASIS. E. URBACH, Arch. f. Dermat. u. Syph. **163**:126 (March 30) 1931.

After painting the back of a rabbit with 10 per cent croton oil and thus producing a marked inflammatory reaction, Urbach found that the nonprotein nitrogen and its fractions, namely, urea, uric acid, creatinine and amino-acids, were considerably increased in the blood and in both the normal and inflamed skin of the animal so treated. He therefore considers the increased values of these fractions so often reported in various dermatoses as a result of the inflammatory reaction present and not as a causative factor of the dermatosis. A number of analyses of the blood and skin in pruriginous dermatoses and psoriasis are given.

A NEW METHOD FOR THE EXACT DETERMINATION OF THE COLOR OF SKIN. ALOIS M. MEMMESHEIMER, Arch. f. Dermat. u. Syph. **163**:201, 1931.

Memmesheimer describes a new apparatus for the determination of the color of skin based on the Ostwald color classification. The method is of value in recording the exact color of pigmented lesions, erythemas, hair, etc.

HYPERKERATOSIS (KYRLE) AND DYSKERATOSIS (DARIER). C. KREIBICH, Arch. f. Dermat. u. Syph. **163**:215, 1931.

Kreibich describes a patient who had typical lesions of Darier's disease on the scalp, face and neck. In addition there were follicular and parafollicular keratotic lesions on the trunk which did not have the characteristic epithelial changes of Darier's disease but resembled rather the hyperkeratosis described by Kyrle in 1916 as "hyperkeratosis follicularis et parafollicularis in cutem penetrans." Kreibich's case, however, does not show the advanced stage of penetration of the cutis by the follicular plugs observed by Kyrle. There appears to be a definite relationship between the two diseases, which may ultimately be shown to be due to the same etiologic factor. The Darier's disease lesions on the face and neck disappeared under treatment with Grenz rays.

THE PRODUCTION OF HYPERSENSITIVITY TO PARAPHENYLENDIAMINE IN THE GUINEA-PIG. R. L. MAYER, Arch. f. Dermat. u. Syph. **163**:223, 1931.

By massaging a 10 per cent ointment of paraphenylendiamine base in petrolatum into the skin of guinea-pigs, using 1 Gm. daily in the same area for a period of from ten to fourteen consecutive days, it is possible to make the animals hypersensitive to the drug. This is shown by the production of an eczematous reaction when a patch test is made on an untreated portion of the skin. The hypersensitivity is specific for the drug and some chemically related amines. The sensitized animal's resistance to the toxic effects of the drug was neither increased nor diminished. No reaction comparable to a true anaphylaxis could be observed.

SEASONAL VARIATIONS IN THE INCIDENCE OF DISEASES AND THE INFLUENCE OF DIET ON EXPERIMENTAL SENSITIZATIONS. R. L. MAYER and M. B. SULZBERGER, Arch. f. Dermat. u. Syph. **163**:244, 1931.

Guinea-pigs on a winter diet of hay, beetroots and a mash of bran and potatoes could be more easily sensitized to neoarsphenamine and paraphenylendiamine than those on a summer diet principally of fresh grass. The authors consider that variations in diet in the summer and winter months account for variations in the incidence of many diseases, especially those of the allergic type.

FACTORS INFLUENCING THE PRIMARY LESION IN EXPERIMENTAL RABBIT SYPHILIS. ROBERT BRANDT, Arch. f. Dermat. u. Syph. **163**:263, 1931.

1. By the use of material from a rapidly growing primary lesion more rapidly growing chancres are produced than from a lesion showing only a slight tendency to grow. The number of "takes" and the incubation time are not affected by the above factor.

2. The left side of the scrotum is the more favorable one for "takes." When both sides are inoculated, a chancre usually appears first on the left side and generally grows to a larger size than that on the right.

3. The presence of the testicles favors a "take."

4. Black and gray animals usually showed shorter incubation periods and more greatly developed chancres than the other types.

5. The months of September and October were the most favorable, animals then inoculated showing the lowest incubation period and the best developed chancres.

MONASH, New York.

THE HERPES-ZOSTER-VARICELLA PROBLEM. H. MOMMSEN, Monatschr. f. Kinderh. **50**:11 (May) 1931.

This is an interesting report of epidemics of herpes followed in the usual incubation time by varicella. In three epidemics, a case of zoster was followed in the second generation by zoster affecting the sister of the previously sick child and by nine cases of varicella. In the fourth generation, one case was noted apparently combining the two diseases, and in the fifth generation, varicella appeared again. The author concludes from these clinical studies that the varicella virus is changeable, and by incubation in certain carriers may give the picture of herpes.

GERSTLEY, Chicago [AM. J. DIS. CHILD.].

THE YELLOW DISCOLORATION OF THE SKIN OF PATIENTS WITH NEPHRITIS. E. BECHER, München. med. Wchnschr. **77**:1922 (Nov. 7) 1930.

The face and hands of some patients with renal insufficiency, especially those with contracted kidneys, exhibit a yellow discoloration. A similar discoloration has been described in cases of pernicious anemia. However, there are several differences. In renal insufficiency the yellow discoloration appears on the exposed surfaces, and the urine is pale. In pernicious anemia there is a generalized discoloration of the skin, and the urine and serum are yellow.

Investigations to explain this difference were made in animals. The entire small and large intestine was resected. The urine secreted as long as the animal lived was pale. In other animals both kidneys were removed. At autopsy there was no evidence of yellow discoloration of the serum or extracts of tissue. A section of skin was removed from the back of a patient who died of renal insufficiency. The tissue extract was pale. However, it became yellow when exposed to the light. From these experiments and the clinical observations Becher draws the following conclusions: The colorless precursors of urinary pigments are formed in the intestine. They are carried by the blood to the kidney where they are oxidized to the colored urinary pigments. When a large part of the renal tissue is destroyed there is a decrease in the intrarenal oxidation, less urinary pigment is formed and the urine is pale. The colorless pigment precursors (chromogenes) in the blood are increased and some are deposited in the tissues and skin. When exposed to the light they are oxidized to a yellow pigment. Usually the yellow color of the skin of nephritic patients is limited to the hands and face. If other parts of the body are exposed to the light (ultraviolet rays from a mercury vapor lamp can be used), these will also acquire a yellow tinge.

BRAHDY, Mount Vernon, N. Y. [Am. J. Dis. Child.]

HERPES SIMPLEX OR FEBRILIS. J. JIRMA, Ceská dermat. **12**:25 (Feb.) 1931.

After reviewing the evolution of the ideas concerning the etiology of herpetic lesions on the skin, the mucous membranes and the cornea of the human eye, the author devotes the bulk of his work to a consideration of the clinical and the pathologic manifestations of herpes involving the eye. As he succeeded in recovering the herpetic virus from the corneal lesions, he considers the following diseases as herpetic in etiology: keratitis vesiculosa, ulcus corneae herpeticum and keratitis dentritica. He believes that the cases designated as keratitis disciformis may differ etiologically; at least one group was found positive for herpetic virus. On the other hand, he does not consider Mooren's ulcer or Schnyder's herpes corneae posterior as herpetic in etiology. Herpetic virus may penetrate into the anterior chamber and cause changes in the iris. That other parts of the eye may also take part in herpetic involvement is but a hypothesis.

The author recovered the herpetic virus from the diseased tissues and also from the saliva and the blood of herpetic patients. Herpetic blood injected into a rabbit caused an involvement of the central nervous system. The inoculation of the resulting encephalitic tissue into the cornea of another rabbit again brought on herpetic lesions. The author did not succeed in isolating the virus from the cerebrospinal fluid.

Inoculation of herpetic virus into the skin or traumatized buccal or pharyngeal mucosa of a rabbit brought on in some cases a local reaction, a production of herpetic lesions plus encephalitis. In other cases it caused an encephalitis without previous local lesions. All other forms of inoculation (subcutaneous, intraperitoneal, intravenous, per os, into different organs or into peripheral nerves) also caused encephalitis without local lesions. Encephalitis varied as to form. Nothing characteristic or specific for herpetic encephalitis was found in numerous histologic specimens examined.

Histologic specimens from herpetic lesions of the cornea showed so-called "inclusions," peculiar intranuclear bodies described as eosinophilic. The author considers them as manifestations of the cellular reaction to the infection and not as a morphologic part of the herpetic virus. (Inclusions were considered parasitic by some.) No known cultural method was successful in growing the virus. It passes fine kaolin filters. It can be kept in full virulence in 50 per cent dilution with glycerin for ten months if air and light are excluded.

F. P. C. SPINKA, Texarkana, Tex.

CUTIS RHOMBOIDALIS NUCHAE MIT KOLLOIDER DEGENERATION (JADASSOHN). I. MIYAKE, K. NARAHARA and I. TAKATA, Jap. J. Dermat. & Urol. **31**:34 (Jan. 20) 1931.

This is a report of three cases, the first to be reported from Japan. The patients were elderly men who had spent most of their lives in the open air, and this fact is thought to be of significance etiologically. The sides of the neck and the nuchae were the parts affected. In one case the front of the chest was also involved, the first time this has been noted. The skin was divided into small sections of rhomboidal or triangular shape separated by furrows of different depths. The color of the affected skin was yellowish brown and the surface was rough and ragged, as some areas were hypertrophied while others were normal or atrophied. In one of the cases, at the base of these skin furrows numerous fine wrinkles were noticed; this has never before been reported. On histologic examination, there was regressive metamorphosis of the elastic fibers and interstitial tissue fibers.

ISAMI SEKIYAMA, Los Angeles.

DERMATOLOGIC ABSTRACTS

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

SIMILARITY OF PSEUDOTUBERCULOSIS AND TULAREMIA. HOBART A. REIMANN and WERNER J. ROSE, Arch. Path. **11**:584 (April) 1931.

Reimann and Rose state that the striking similarity of the clinical histories and pathologic reports of cases of pseudotuberculosis to the descriptions of tularemia, particularly that of the "typhoidal" type, suggests the possibility of a relationship between the two diseases. Tularemia has been recognized in Russia and in Scandinavia, and there seems to be no reason for its nonexistence in central Europe, from which no cases have been reported. Experiments on animals with Bacillus pseudotuberculosis for the most part closely parallel similar experiments with Bacterium tularense. The same animals are susceptible, and similar lesions are found grossly and histologically. Of particular interest is the absence of typical giant cells in the nodules in both diseases. The descriptions of the morphologic and cultural characteristics of Bacillus pseudotuberculosis and Bacterium tularense show a close resemblance. The chief points of difference lie in the failure to cultivate Bacterium tularense on ordinary mediums or to demonstrate the organisms in sections or smears from human tissue.

TREATMENT OF WARTS. E. D. OSBORNE and E. D. PUTNAM, Radiology **16**:340 (March) 1931.

During the past three years, Osborne and Putnam have entirely discarded the use of fractional, repeated doses of roentgen rays in the treatment of plantar warts. Their proportion of cures has risen 20 per cent since employing the single, massive dose. They have never repeated the dose inside of two months, and they have seen warts disappear ten weeks after the one initial, maximum dose. They have never given more than two maximum doses to a single wart. Out of a total of 322 patients with plantar warts, 220 were treated with roentgen rays, and the result was noted. Of these, 176, or a percentage of 80, were cured with one treatment; 17 patients, or a percentage of 7.7, were cured with two roentgen treatments, giving a total percentage of 87.7 cured by the use of roentgen rays alone.

EFFECT OF ROENTGEN RAYS ON HEALING OF WOUNDS. E. A. POHLE, G. RITCHIE and C. S. WRIGHT, Radiology **16**:445 (April) 1931.

Eighty white rats were exposed by Pohle and his associates to two qualities of roentgen rays (100 kilovolts, 2 mm. of aluminum; 140 kilovolts, 0.25 mm. of copper + 1 mm. of aluminum) preceding or following incisions in the skin. In the first group, half of each wound extended into previously irradiated skin; the other half remained in unexposed tissue. In the second group, half of each incision was irradiated following the cutting, and the other half was protected. Seven days following the cutting, and also after complete healing, the animals were killed and the skin was prepared for microscopic examination. Irradiation with a dose of 1,000 rays given in one sitting, of either quality of roentgen rays, as defined, from one to thirty days before the incision, did not influence the healing process perceptibly. Irradiation with a dose of 1000 rays in one sitting, with either quality of roentgen rays immediately, twenty-four hours and forty-eight hours, respectively, after the incisions, retarded the healing process, particularly in the twenty-four hour group, but did not interfere with the final formation of a smooth scar.

ACTINOTHERAPY AT TUBERCULOSIS DISPENSARY. G. JESSEL, Lancet **1**:1182 (May 30) 1931.

According to Jessel, artificial light treatment can be successfully given at tuberculosis dispensaries under the control of local authorities. It is especially useful in cases of lupus and allied skin conditions, adenitis with and without softening, and other superficial conditions. It is much less effective in the treatment for tuberculous disease of the larger joints and bones, which should be treated in special residential institutions. In the treatment for lupus, a combination of general light therapy with local treatment (e. g., Kromayer lamp) is usually necessary, and the carbon arc bath is to be preferred to the mercury vapor lamp for general irradiation. Prolonged exposure to weak carbons is preferable to brief exposure to strong cored carbons. It is efficacious, safe and particularly suitable for use by tuberculosis officers who have other duties to perform outside their dispensaries. To obtain the best results, actinotherapy needs frequently to be combined with various forms of local treatment; e. g., the use of suitable caustics in lupus and the aspiration or incision of abscesses.

SPECIFICITY IN THERAPY. ACTION OF ANTISYPHILITIC MEDICAMENTS. SÉZARY, Bull. et mém. Soc. méd. d. hôp. de Paris **47**:734 (May 18) 1931.

Sézary studied the problem of specificity in therapy, particularly in regard to antisyphilitic medicaments. He states that specificity in therapy is applicable not only to syphilis and to articular rheumatism but also to mycosis, amebic dysentery and probably also to malaria. The specific medicaments used in these ailments consist of arsenic, bismuth, mercury, iodine, sodium salicylate, emetine and quinine. The author emphasizes that the specificity of these substances is far from being absolute. The study of antisyphilitic remedies illustrates particularly this fact. The arsphenamines, for example, are used with success in the treatment for Dühring's disease, lupus erythematosus, tuberculids, herpes zoster, psoriasis and even gonorrheal rheumatism, erysipelas, puerperal septicemia and asthma. The injections of bismuth produce remarkable results in lupus erythematosus, in various centrifugal erythemas and sometimes in psoriasis. Mercury has a marked action on psoriasis and on certain infantile eczemas. Iodine and the iodides are specific not only in tertiary syphilis but also in mycosis and in certain cases of chronic nonsyphilitic rheumatism. Emetine also cures lung abscess not of amebic origin. Thus, the specificity of these medicaments is so uncertain and indefinite that some of the indications are completely inexact. The author emphasizes the fact that in vitro neither arsphenamine nor bismuth has any direct action on Spirochaeta pallida. When the spirochetes are placed in a 1:125 solution of neoarsphenamine and are examined under an ultramicroscope, it is noted that they fully conserve their mobility and vitality. He believes that there has to be some relation between the remedy employed and the reaction of the organism to the disease. This explains why mercury is so active in the beginning of syphilis and why the iodides are more active in tertiary than in secondary syphilis. The difference in the reactions of the affected organism explains the differences in the activity of the remedies. This reaction, which as yet cannot be defined by its cytologic formula, is so complex that the author does not attempt to define it. One must consider in connection with it the nature and the virulence of the micro-organism as well as the humoral constitution of the patient.

ANAPHYLACTIC RHEUMATOID PURPURA PROVOKED BY MUSCULAR EFFORT. SÉZARY, HOROWITZ and RIVOIRE, Bull. et mém. Soc. méd. d. hôp. de Paris **47**:760 (May 18) 1931.

Sézary and his collaborators describe a case of purpura that is of interest from various points of view. Clinically, the ailment was distinguished by the large number of purpuric patches and by their repeated recurrence, which prevented the patient from doing active work. The eruption was polymorphous; besides petechiae, there were papules due to dermal infiltration, as well as the edematous papules of urticaria. The syndrome never developed after ingestion of foods, regardless of what they were. But the injection of various protein solutions or of

sodium thiosulphate did provoke it. In regard to the pathogenesis of this type of purpura, one has to recall the importance of its accompanying pruritus. It often includes pruriginous papules of typical urticaria. This fact, together with the well known part that muscular contraction plays in the etiology of certain urticarias, is in favor of the anaphylactic nature of the condition, because urticaria appears to be one of the best defined anaphylactic conditions. In the treatment for purpura the main object must be desensitization. The authors used minute doses of peptone subcutaneously and intradermally. They began with 0.0025 Gm. of peptone and progressively increased the dose to 0.005 and 0.0075 Gm. They also administered intravenous injections of 20 per cent solution of sodium thiosulphate, gradually increasing the dose. The treatment led to complete recovery of the patient.

Pseudosyphilis of External Genitalia in Female Infants. J. Gay Prieto, Arch. españ. de pediat. **14**:705 (Dec.) 1930.

Gay Prieto's patient, aged 7 months (a daughter of a syphilitic patient previously treated, whose serologic reaction became negative for syphilis), presented an apparently syphilitic lesion of the vulvae. Ultramicroscopic examination of the exudate from the papules and the examination of the patient's blood gave negative results for syphilis. The good results obtained with a treatment consisting of an indifferent paste and methenamine confirmed the nonsyphilitic etiology of the exanthem in this case. The characteristics of several kinds of exanthems resembling syphilis that appear on the external genitalia in female infants are reviewed in relation to the differential diagnosis with the author's case. Special reference is made to certain forms of lesions, such as simple forms of syphiloid posterosive dermitis, chancriform pyodermitis, pseudosyphilis of the external genitalia (similar to that type which Lipschütz described in adult women with vaginal discharge) and lichen obtusus. Owing to the aspect of the patient's lesions and to the presence of vulvitis, the author's case should be considered as pseudosyphilis of the Lipschütz type in spite of the scanty lesions in the gluteal region similar to a form of papulous infantile erythema. The author reaches the following conclusions: There is in female infants a form of condylomatous pseudosyphilis clinically similar to pseudosyphilis of the Lipschütz type. The clinical symptoms and the presence of syphiloid lesions on the external genitalia of female infants should not form the basis of a diagnosis of syphilis, unless the serologic tests and ultramicroscopic examination of the lesions confirm the clinical diagnosis. Otherwise the aspect of the lesions may lead to error in the diagnosis.

Infraroentgen Ray Therapy of Skin Diseases. F. Blumenthal and L. Böhmer, Deutsche med. Wchnschr. **57**:404 (March 6) 1931.

Blumenthal and Böhmer first discuss the nature of infraroentgen (grenz) rays. Compared with the roentgen rays, the infraroentgen or border rays have only a slight penetrative power, so that the largest portion of the irradiation is absorbed by the upper layers of the skin. It is pointed out that Bucky, who first recommended the use of these rays, emphasized their harmlessness. But because it is necessary to apply much larger doses than is necessary in roentgen irradiation in order to obtain therapeutic results, the relative harmlessness is partly nullified. The authors further direct attention to the difficulties that are encountered in the dosage of the infraroentgen rays. They found that the erythema which is produced by the rays, in the majority of cases, disappears after several days, without causing other results than an intense pigmentation, which requires a longer period for regression, and which for this reason is disadvantageous, especially if the face is involved. Occasionally, however, erythemas develop that cause severe, subjective disturbances, and their healing requires several weeks. In regard to the therapeutic effects of infraroentgen rays, the authors state that in superficial dermatoses (eczema, psoriasis and so on) in which the infiltrates were not deep, the same results were obtained as are effected with roentgen surface irradiation, except that the process was somewhat slower. In cases with deeper infiltrations, however, the efficacy of infraroentgen rays did not reach that of roentgen rays

unless the erythema dose was far exceeded, and injurious effects had to be feared. In lupus, in tuberculosis verrucosa and in mycosis fungoides, favorable results were obtained with infraroentgen therapy. The authors think that there are no essential differences between the action of infraroentgen rays and that of roentgen rays. The differences are only quantitative; namely, in the penetrative power and the absorption. It is true that in infraroentgen treatment the largest portion of the radiation is absorbed by the superficial layers of the skin, but a part penetrates to the cutis and to the subcutis and here exerts the same influences as ordinary roentgen rays. Nevertheless, the authors recognize that the infraroentgen rays represent an essential enrichment of therapeutic resources, whenever it is desirable to prevent deep penetration. They are specially helpful in the treatment for dermatoses in which the hair follicles are to be spared or in which roentgen-susceptible tissues (parotid, generative glands) are involved. Another advantage is that in extensive dermatoses it is possible to prevent such secondary reactions as roentgen intoxications. The therapeutic effects of the infraroentgen rays are not exceptional and not superior to those obtainable by ultraviolet irradiation.

SKIN IN ENDOCRINOPATHIES: THREE CASES OF ATYPICAL CIRCUMSCRIBED MYXEDEMA. V. M. SLONIMSKAYA and S. A. GLAUBERSON, Sovrem. psikhonevrol. **11**:252 (Oct.-Nov.) 1930.

Slonimskaya and Glauberson studied the interrelations between the skin and the endocrine glands of the human body, especially of the thyroid. They think that there is not enough evidence to consider the skin as an organ of internal secretion. But an already established fact is the definite mutual relations between the condition of the skin of the human body and its endocrine system. It is also indisputable at present that the hormones of the various endocrine glands have an influence on the condition of the skin, and any disease of these glands leads to definite skin changes. From an extensive review of the literature on the subject, mainly on thyroid insufficiency, and from intensive observations made on their own three different cases of atypical circumscribed myxedema, the authors consider this symptom complex as dysthyreosis and its accompanying skin changes as cutaneous dysthyreosis. They claim that to the Russian investigator Levtchenko belongs the honor of the first complete description of this entity and to Bogrov, Krupnikov and Ivanov the honor of deciphering it; also a relatively large part (eight of twenty-eight) of the cases reported, were described by the Russian investigators. Lately, on account of an easier way of recognizing this disorder, it is reported more often. In twenty-eight observations, fifteen were in women and ten were in men; the sex in three cases is unknown. The age lies between 20 and 56. Profession has no relation to the occurrence of the disease. It is seen with diffuse myxedema as well as without it in the form of slightly elevated yellowish infiltrated patches of different sizes and with ragged edges, situated on edematous as well as on healthy skin in the form of nodules, elevations and tubercles. The size varies from that of a lentil or a pea to that of a large plum; on palpation the lesions feel indurated, their color varies from rose to gray, waxlike and brown with various tints to the color of normal skin. They are round, oval, semicircular or irregular. The nodules and tubercles occur isolated or in patches with strips of normal skin between. The surface is streaked by skin furrows with follicles. The distribution of the eruption is often symmetrical. The localization is the face, hairy part of the head, neck, trunk, upper and lower extremities, buttocks, perineum and scrotum. On the thighs one finds chiefly large, indurated, dark or light brown nodules with gaping follicular openings with isolated spots of healthy skin between them. Microscopically, there was found mucus, mucoid degeneration of loose connective tissue and imbibition of the skin with mucus. Thus, the relation of these skin changes with the thyroid (dysthyreosis) is evident. The pathogenesis of this disease is still unknown. The authors reviewed also most of the observations reported in regard to the microscopic manifestations of this entity just to satisfy their conclusion as well as the conclusions of many other authors that goiter is not a pure hyperthyreosis and that with its increased function there is also qualitatively changed secretion.

Society Transactions

SAN FRANCISCO DERMATOLOGICAL SOCIETY

Jan. 23, 1931

THOMAS CLARK, M.D., *Chairman*

H. J. TEMPLETON, M.D., *Secretary*

CONGENITAL KERATOSES. DR. CHARLES E. SCHOFF.

A 9 year old child is presented because of a congenital keratosis of the lips, palms, soles, labia majora and anus. The patient's mother has the same lesions on her hands and feet and in the perianal and perivaginal regions; the mother's father had the same affliction. Another child is free from the condition. This case is presented for the interest of the occurrence of hyperkeratosis of the lips. I took some scrapings from the lesions, and both slides and cultures proved to be negative.

DISCUSSION

DR. H. E. ALDERSON: I have seen a good many examples of familial hyperkeratosis of the hands and feet, but I have never seen any lesions as scattered as in this case. The child is young, but I would suggest the possibility that the lesions are gonorrheal hyperkeratoses. I have never seen congenital keratoderma appearing in the form of small, scattered, isolated lesions involving the lips and other parts of the body. Furthermore, these lesions are not in any way characteristic of arsenical keratodermia.

DR. THOMAS CLARK: The palms are distinctly hyperkeratotic, and, considering the clearness of the history, I think that a gonorrheal process can be excluded.

A CASE FOR DIAGNOSIS. DR. HARRY J. TEMPLETON.

For about two months Mrs. A. B. has noticed patches of dermatitis on her thighs. She gives no history of focal infection, allergy or previous dermatitis. The patient's skin is quite dry, and she has a mild seborrhea capitis. When I first saw her she had a patch of neurodermatitis on the lateral portion of her thigh. That was treated with the roentgen rays. A week or two thereafter papules ranging in size from that of a small pinhead to that of a split pea began to appear on the dorsa of the thighs. Roentgenotherapy produced some improvement in the original lesions. Since the basal metabolism was found to be —10 the patient was given thyroid, which has not helped her. An internist has reported some suggestion of a pathologic condition of the biliary tract. Scrapings were negative for fungi. A specimen removed from one of the smaller papules showed practically no changes in the epidermis but a decided perivascular round cell infiltration in the corium. The patient was given treatment with ultraviolet rays for several weeks, with no improvement. Recently lesions that have been very suggestive of pityriasis rosea have made their appearance.

DISCUSSION

DR. ERNEST D. CHIPMAN: When I first saw the patient I elicited the fact that there had been one bleb on the abdomen. She formerly had some pruritus, and since the eruption developed the pruritus has disappeared. One must think of the possibility of dermatitis herpetiformis with the occurrence of even a single

bleb. The patient has had one lesion that she knows was a blister, and the scratch marks correspond precisely to the description given by Milian as being especially significant of an abortive form of this disease. The scratch marks are the size of a small lentil, which raises the suspicion that they have existed previously as blebs. One may consider the possibility of a lichenoid type of parapsoriasis. The severe itching, however, is contraindicative of this; also against the diagnosis of pityriasis rosea is the fact that the condition was aggravated by the treatment with ultraviolet rays. I do not believe one can make a definite diagnosis at this time.

DR. MERLIN T. R. MAYNARD: The impression that this case gave me was that of allergy with an original fixation irritation. Cases of this kind show considerable sensitivity to ultraviolet rays, which is probably due to sensitization to histamine. This type of case fits into the classification described by Stokes as due to the absorption of histamine through the duodenal mucosa in cases of lowered protection in hypochlorhydria. The present patient stays well as long as she takes enough acid to control the bacterial growth in the duodenal tract. A patient with a similar eruption took a trip, forgot her medicine and had a relapse. She returned to San Jose, immediately resumed the treatment with acid, and the symptoms cleared up. I should like to see a roentgenogram of the gastrointestinal tract made with a test meal.

DR. GEORGE CULVER: I should like to suggest that in the later observation of this case lichen planus be kept in mind.

DR. H. J. TEMPLETON: Lichen planus would seem to be eliminated by the results of biopsy. The pruritus is contraindicative of psoriasis. I should call this a toxic dermatitis of long standing, plus acute pityriasis rosea.

DR. JOHN GRAVES: This patient suffers from a chronic inflammatory process in the gallbladder. This frequently results in a reflex hyperacidity in the stomach. Therefore, the administration of hydrochloric acid might produce exactly the opposite results to those desired. This point should be checked before administering any type of acid. This eruption has some of the characteristics of pityriasis lichenoides et varioliformis acuta, and this condition should be kept in mind as a possible diagnosis.

MYCOSIS FUNGOIDES. DR. MERLIN T. R. MAYNARD.

The patient, aged 54, complains of itching spots in the skin, with tumors, of a duration of a year and a half. He has lost weight considerably in the six months previous to presentation. He has cough, weakness, loss of appetite and fever. The past history is not significant. An examination shows many pigmented areas over the trunk and arms, with numerous areas of tumefaction of a similar color. The diagnosis of granuloma fungoides was made, substantiated later by a biopsy. The patient has received roentgen treatment and is presented for further suggestions regarding treatment. Incidentally, a roentgenogram of the chest shows a definite mediastinal mass. The blood count was normal with the exception of a mild secondary anemia. Each roentgen treatment has been followed by considerable reaction, but the patient has definitely improved. He has a slight fever each night. Biopsy was done on a lesion of the right forearm. There are lesions also around the hips, legs and ankles. I should like to know what success has been achieved with protein shock. The patient does not tolerate roentgen irradiation well.

DISCUSSION

DR. HIRAM MILLER: We recently gave a patient with mycosis fungoides several foreign protein shocks with killed typhoid organisms. They were of little benefit. We attempted to give the patient an erysipelas infection but were unable to do so.

A Case for Diagnosis. Dr. Harry J. Templeton.

Mr. S., aged 59 years, was being treated for a prostatic disturbance. About Oct. 1, 1930, he noticed a small, round spot on the glans penis. This spot has gradually enlarged. When I first saw him, it was the size of a dime. It had the appearance of a burn, but there was no such history. There were no lesions elsewhere and no history of any drug ingestion. Scrapings were negative for fungi. The Wassermann reaction was negative. The lesion has regressed probably from 60 to 75 per cent, as a result of six fractional doses of unfiltered x-rays. The patient is presented for diagnosis, with lichen planus and psoriasis as possibilities. A biopsy examination was not made.

DISCUSSION

Dr. George Culver: I think the condition is lichen planus. I have not seen many instances of lichen planus of the glans penis alone. It may be impossible to distinguish the individual papules on the glans penis.

Ulcer of the Palate. Dr. Harry J. Templeton.

An infant, aged 14 months, has in the center of the hard palate an area of necrosis slightly smaller than a dime. This began six or seven weeks before presentation. It appeared to us to be deeply necrotic. There was considerable destruction of the soft tissue. We thought first of syphilitic osteomyelitis. Both mother and father had a negative reaction to a complement-fixation test for syphilis. Physical examination, a tuberculin test and an intradermal organic luetin test gave negative results. The lungs were examined with roentgen rays for tuberculosis, but no evidence of this condition was found. The patient has had three injections of a preparation of bismuth, and there has been no improvement. Roentgen examination of the hard palate was attempted, but this was physically impossible because of the struggling of the patient. Roentgen examination of the tibiae showed no syphilitic perostitis.

DISCUSSION

Dr. Harry J. Templeton: I have no doubt that the condition is syphilitic.

Dr. Hiram Miller: I think the condition may be osteomyelitis due to trauma. The lesion is not in the midline and is farther forward than the usual gummatous lesion. The aerola of the lesion, which is very distinct, is reddened and swollen, giving evidence of low-grade infection, and I do not see why an ordinary infection might not produce the necrosis that is present. If the necrosis should be removed under general anesthesia, the patient would recover.

Note.—Complete involution occurred as the injections of bismuth were continued.

Lichen Scrofulosorum. Dr. Harry Alderson.

A boy, aged 11 years, has had lesions on the chest for two years. The individual lesions look very much like those of granuloma annulare, except that within the circle the skin is slightly bluish. The cutaneous lesions are very faint now; their borders are somewhat elevated; there are none on the lower extremities. The patient has also synovial lesions of the wrist and ankle joints, which are rather painful and can be emptied by pressure. They have been considerably larger than at present. No tuberculous foci have been discovered. The patient is a healthy looking boy and feels well. Tuberculin tests made by Dr. Lucas gave negative results, as did all physical examinations. On the back of the neck there is a small group of pale miliary papules typical of lichen scrofulosorum. The boy was given a series of injections of a gold preparation, with definite improvement from the beginning. The swellings of the joints have been reduced one-half in size.

DISCUSSION

DR. H. J. TEMPLETON: Such cases must be extremely rare. At one time Stelwagon stated that he had never seen an example of lichen scrofulosorum.

DR. H. E. ALDERSON: The group of lesions on the neck is typical of lichen scrofulosorum, but those on the trunk represent a form more rarely seen. A biopsy of one of the latter lesions was done, and the microscopic picture is that of lichen scrofulosorum.

DR. HIRAM MILLER: This condition does not correspond with my conception of lichen scrofulosorum. I have seen a few examples of the disease. The lesions were pinhead sized papules and definitely grouped. In this case the individual lesions were said to resemble granuloma annulare. It might be classified as a tuberculid, but not as lichen scrofulosorum.

DR. H. E. ALDERSON: There are typical miliary papules on the neck. These are the only characteristic lesions that the patient presents, the numerous annular papules on the chest being entirely different in appearance.

DR. M. T. R. MAYNARD: I should say that the condition is atrophic lichen planus.

TELANGIECTASIA. DR. FRANCES TORREY.

An American housewife, aged 47, was first seen at the University of California clinic in August, 1930. At that time she complained of a choking sensation in her throat, vague generalized pains and nervousness. During routine examination telangiectasia of the legs was noticed. This had been present at least ten years. The patient stated that it had been increasing very slowly. At the time of examination, closely appropriated dilated vessels extended from the ankles to the knees. No deeper varicosities or areas of dermatitis were present. The positive findings of physical examination were: blood pressure, 158 systolic and 78 diastolic; basal metabolism rate, —3.8; Wassermann reaction, 4 plus in three dilutions. Roentgen examination revealed hypertrophic arthritis of both sacro-iliac arteries and abscessed teeth. There were hyperactive reflexes and tremor of the fingers.

TELANGIECTASIA. DR. FRANCES TORREY.

A white woman, aged about 35, has been under observation at the University of California clinics since 1924. At that time a diagnosis of myxedema and secondary anemia was made. There is a history of pneumonia three times, at the age of 20, 21 and 24, respectively, once with pleural effusion; there was an acute gonorrheal infection in 1923. In 1924, the basal metabolism rate was —33, and there was severe secondary anemia. In 1926 a therapeutic abortion was performed, followed several months later by a hysterectomy. In 1927, the patient came to the surgical clinic complaining of varices and severe pains in the legs. Telangiectasia was noticed at that time and has only slightly increased since. There are small dilated closely approximated vessels covering the lower two thirds of the legs. The patient complains now of slight burning sensations recurring at frequent but irregular intervals. The last basal metabolism rate, taken in October, 1930, was —21. Other laboratory findings are negative.

DISCUSSION ON TELANGIECTASIA

DR. H. J. TEMPLETON: We have seen several such cases. One characteristic feature is the parallel linear arrangement of the telangiectatic vessels. We have called such conditions progressive telangiectasia of the legs. They do not resemble Schamberg's disease, Majocchi's disease or angioma serpiginosum.

DR. H. E. ALDERSON: There is evidently some inherent weakness in the capillaries. I have a patient, a young woman, who after a long day's hike in a high altitude jumped into an ice-cold pool. Immediately telangiectasia developed on her ankles, and the condition has persisted ever since.

PERIADENITIS MUCOSA NECROTICA RECURRENS. DR. HIRAM MILLER.

A woman, 29 years old, has had a sore mouth and tongue since she was 6 years old. The condition has become markedly worse in the past few years. She has a daughter 9 years of age with a similar condition, which started when she was 6 or 7. The mother has been perfectly well all her life except for children's diseases. There are half a dozen active pea-sized, deep-seated ulcers over the tongue and buccal mucosa. The entire tongue and mucosa are thickly covered with scars from old lesions. Several months before presentation she came to my office and said that she had a "cold sore" under her arm, and when I examined her I discovered a lesion that I could not distinguish from a "cold sore." She has never had a biopsy made.

SARCOID. DR. HIRAM MILLER.

The patient in this case is 40 years of age and has had an eruption for about a year which consists of six or eight pea-sized, slightly infiltrated, light-brown areas symmetrically placed over the brows, cheeks, upper lip and lobes of the ears. The lesion on the right ear is about the size of a pigeon's egg. We at first thought that the condition was a true tuberculosis of the skin, but, as Dr. William Mook pointed out, the symmetry of the eruption is more than suggestive of toxic tuberculosis or sarcoid. The patient showed from 50 to 60 per cent improvement after injections of a gold preparation. Injections of arsphenamine were given without benefit.

DISCUSSION

DR. H. J. TEMPLETON: It would be worth while to try the Gerson or Sauerbruck-Hammensdorfer diet.

MELANOMA OF THE PENIS. DR. STUART WAY.

D. B., aged 65, has a small, round, elevated, mushroom-like lesion on the glans penis of three months' duration. It is firm in consistency and bleeds easily. The color is an intense black. Nearby on the penis are several small, irregular, flat, pigmented macules. The glands are not apparently involved. Biopsy showed that the lesion was a melanoma with an excessive amount of fibrous tissue.

DISCUSSION

DR. L. R. TAUSSIG: I should be inclined to give the patient deep roentgen therapy. I have never seen a melanoma stirred up by proper doses.

DR. HIRAM MILLER: I should let the patient alone, since he probably already has metastasis, although roentgen therapy may be of value.

LUPUS VULGARIS. DR. STUART WAY.

The case is presented as one of atypical lupus vulgaris with some of the characteristics of the erythematous type. The eruption is on the cheeks and began five months ago. The lesions are reddish brown and irregular in outline, some with elevated borders. They vary from 3 to 15 mm. in diameter and number about a dozen. Extracted hairs were of the exclamation point type. The Wassermann reaction was negative. There is no history of tuberculosis. Biopsy showed very minute epithelial-like nodules.

The condition would ordinarily be diagnosed as lupus erythematosis, especially by artificial light, but it seems to present characteristics common to both that disease and lupus vulgaris. The picture has been changed by treatment, but, when the patient was first seen, apple jelly-like nodules were demonstrable under the diascope.

DISCUSSION

DR. E. D. CHIPMAN: Dr. Way has had the advantage of seeing this patient by daylight. To me the condition now appears more like lupus erythematosis. The age of the patient and the rapid evolution also point to that diagnosis.

DR. HIRAM MILLER: From the present clinical appearance, I am in favor of the diagnosis of lupus erythematosis.

DR. H. E. ALDERSON: The main point against the condition being lupus vulgaris is its rapid development. I have never seen that disease start so late in life and develop so rapidly; it usually begins in childhood. The clinical picture in the present case is that of lupus erythematosis, but I should like to see the patient by daylight because under poor artificial light the details do not show up well enough.

GRANULOMA OF THE ORAL MUCOSAE. DR. H. J. TEMPLETON.

This patient was presented at the last meeting. We are presenting him again to tell you that we have not made a great deal of progress in the diagnosis. You will remember that he is from Tahiti. Three years before presentation he noticed a small lesion in his mouth which has spread to its present extent. Cultures on three different modifications of maltose-peptone agar have been negative for fungi. A biopsy specimen has been examined for us by Dr. F. Weideman, who reported that the diagnosis was probably tuberculosis. Dr. Rusk reported that the condition was plasmocytoma. Dr. Ophuls was unable to make a positive diagnosis. Bacteriologic examination showed the usual types of organisms of the mouth. We were looking for Bacillus leprae or Bacillus Frisch, but none were found. A complete physical examination showed nothing of interest. The patient had been treated in Tahiti for a long period for syphilis without improvement. The lesions have not improved with administration of potassium iodide. Inoculation of a guinea-pig, with autopsy six weeks after examination showed absolutely nothing. At my request a second inoculation was made into another guinea-pig, but sufficient time has not yet elapsed for this second pig to be studied. The Wassermann reaction is negative, although we have a report that at one time it was positive. The treatment has been purely empiric. Sodium iodide, gold sodium thiosulphate and antimony and potassium tartrate have been tried without any appreciable improvement. Dr. Karl Meyer has seen the patient and is doing further work from the bacteriologic standpoint. We are going to suggest removal of a submaxillary gland for examination.

DISCUSSION

DR. HIRAM MILLER: Clinically the condition resembles tuberculosis, but the microscopic sections show that diagnosis can probably be eliminated. I think it is still remotely possible that the patient has not had enough iodide to eliminate the possibility of mycotic infection. I see no advantage in giving iodides intravenously to a patient of this type. I should suggest the administration of 40 drops three times a day, by mouth.

DR. M. T. R. MAYNARD: Therapeutically, it would be interesting to see roentgen therapy tried.

FAVUS. DR. STUART WAY.

K. G., aged 15, for two weeks has had on the back of the neck six minute scutella, typical in shape and color, having a mousy odor. The entire area involved was not larger than a half dollar. The diagnosis was confirmed by a culture on Salomand's maltose culture medium. This is the first case of favus that I have seen originating in California. Thus far I have been unable to learn the source of the infection.

DISCUSSION

DR. HIRAM MILLER: I have seen three cases of this condition in San Francisco in the last ten years. Two patients were Chinese and one was an Italian girl who came from the Orient with her parents.

ERYTHEMA INFECTIOSUM. DR. HARRY C. COE.

Recently in Berkeley there has been a small epidemic of an unusual and interesting skin disease. I should like to show some photographs of the lesions in this disease. The pictures were taken on the fifth day of the illness and you will notice the maculopapular reticular lesions on the arms and legs. The mother first noticed a rosy-red blush on the child's face. She thought the patient had fever, but the temperature was found to be normal. There were no constitutional symptoms. A few days later, lesions appeared on the body, arms and legs. There were nine similar cases in the neighborhood, the children all attending the same school. Dr. Frank Kelly, the health officer, and I thought the disease was erythema infectiosum, sometimes called the fifth disease, and by English writers, parascarlatina B. A study of the literature on the subject confirms this diagnosis.

Erythema infectiosum is a contagious disease of childhood affecting those between the ages of 4 and 12 years. The rash first appears on the face as a red blush with circumoral pallor, looking much like scarlet fever. However, there is no fever, and the throat and tongue are normal. Two days later lesions appear on the body, arms and legs. These lesions are typical of the disease; maculopapular, reticular or lace work patterns are produced. The lesions are evanescent. The condition lasts about ten days, and the rash fades without desquamation or scarring.

When the disease was first described by Tschamer in 1886 it was thought to be an abortive type of German measles, but we know that, although immunity is produced by an attack of erythema infectiosum, no immunity is produced to German measles. This proves it to be a separate entity. Shaw first described the disease in the American literature in 1905.

DISCUSSION

DR. H. J. TEMPLETON: Last summer I saw a number of cases of this condition in Vienna. An epidemic occurred, but because of the harmless character of the eruption the patients were not excluded from school. The distribution on the extremities and the annular appearance of some of the lesions are characteristic.

PRESENTATION OF PHOTOGRAPHS. DR. HARRY COE.

PITTSBURGH DERMATOLOGICAL SOCIETY

JAMES H. FISCUS, M.D., *Secretary*

Regular Meeting, March, 1931

LOUIS WILLARD, M.D., *President*

FAVUS. Presented by DR. W. H. GUY and DR. B. A. GOLDMANN.

E. L., a white girl, aged 12 years, from the dispensary of the University of Pittsburgh, presented extensive alopecia of the scalp. The area of alopecia was made up of atrophic scarring and the lesions that were still active were small pustular or scaly lesions surrounding the hair follicles. The history was that this condition began when the child was 6 months old; about that time a child had been visiting in the home who had an infected scalp with thick yellow crusts. Shortly after this the present condition appeared and it has gradually progressed in spite of various types of treatment. Microscopic examination of hairs from the edge of the infected area showed the presence of spores and mycelia. A culture was made and the department of bacteriology reported that the organism was Achorion schoenleinii.

DISCUSSION

DR. G. J. BUSMAN: Because of the girl's age, I should like to know whether the presenters propose to use roentgen rays or thallium acetate.

DR. B. A. GOLDMANN: On account of the child's age, we shall use roentgen treatment in preference to thallium acetate.

CARCINOMA OF THE LIP. Presented by DR. W. H. GUY and DR. F. M. JACOB.

A man, aged 37, presented a nodular cystic mass involving the middle two thirds of the lower lip. There were several small sinuses present, and the center was deeply fissured. The lesion was of one year's duration. The patient had first had a primary lesion at the site of the present mass and a Wassermann reaction of four plus. After the disappearance of the original lesion, the present lesion developed. Biopsy was performed, but the report was not ready.

DISCUSSION

DR. STANLEY CRAWFORD: I agree with the diagnosis of spinocellular carcinoma and feel that the treatment should be complete excision.

DR. H. T. PHILLIPS: This is not the most malignant type.

DR. B. A. GOLDMANN: I am inclined to differ with Dr. Phillips as to the malignancy of this case. There is already an enlarged gland under the chin and I feel that this will grow rapidly.

DR. W. H. GUY: This is definitely a carcinoma and probably of an epidermoid type. A section has been removed and a report will be made later. I feel that radium therapy is the method of choice; buried radium will be used. The necessarily enormous defect resulting from an operation will make surgery second choice, provided radium therapy offers the same chance of permanent cure.

LUPUS VULGARIS. Presented by DR. F. P. KENNEY.

F. B., a man, aged 32, a railroad fireman, married, an American born of Slavish parents, from the dispensary of the University of Pittsburgh, presented over both malar processes a nodular ulcerative lesion, which was covered by a slight scale. The lesion was indurated and showed areas of healing. Under the diascope small apple jelly-like nodules were seen. The lesion started as a small pink papule on the left malar process eight years before presentation. Physical and roentgen examination of the chest gave negative results.

DISCUSSION

DR. G. J. BUSMAN: I think that small lesions like this can be readily excised and that this treatment would be most appropriate.

DR. W. H. GUY: I also feel that a permanent cure would probably be obtained with wide excision of the deep nodular lesion on the left cheek. There is plenty of loose tissue in this area. Acid nitrate and similar substances are too superficial in action to reach the pathologic process in this area.

TULAREMIA. Presented by DR. W. H. GUY and DR. B. A. GOLDMANN.

A colored woman, aged 34, presented a healed ulcer on the right middle finger, and open ulceration in the epitrochlear and axillary regions. The patient stated that in November, 1930, while cleaning a rabbit she pricked the finger with a spicule of bone. An ulcer formed which would not heal. In about ten days she became acutely ill with chills and fever and was confined to bed for three weeks. Tender glandular enlargement appeared in the epitrochlear and the axillary areas. She was first seen by the presenters at the dispensary of the University of Pittsburgh about one month before presentation, at which time the ulceration on the finger was still active. A fluctuating mass the size of a pullet egg was

present at the elbow, and multiple tender enlarged glands could be palpated in the axilla. The temperature at this time was 99.2 F. The patient was hospitalized, the fluctuating mass was drained, and a gland was removed from the axilla for section, which showed a lymphocytic and polymorphonuclear infiltration with areas of necrosis. Serum was forwarded to Washington and Dr. McCoy reported agglutination of the B. tularense in a dilution of 1:80 and partial agglutination at 1:160.

DISCUSSION

DR. STANLEY CRAWFORD: The history of the wounding of the skin with rabbit material followed by enlargement of the glands and a rise in temperature suggests tularemia; the diagnosis could not be made with certainty until the agglutination test had been done. Tularemia is a general medical condition which lies in the field of the internists, but of which the dermatologists must be cognizant.

NEUROTIC EXCORIATION. Presented by DR. W. H. GUY and DR. F. M. JACOB.

A salesman, aged 37, presented an eruption of six months' duration limited to the bearded area. On the cheeks were multiple small atrophic scars and erythematous, slightly elevated, low grade inflammatory lesions. On the chin were indolent crusted ulcerations in linear configuration. The Wassermann and therapeutic tests gave negative results. A section from the ulcerative lesion which was presented revealed a pseudo-epitheliomatous proliferation at the edge of the ulcer with much parenchymatous and interstitial edema in the acanthotic rete. The lymphatics and the blood vessels were dilated, and considerable edema of the collagen was noted. An inflammatory, rather diffuse infiltration comprising lymphocytes, polymorphonuclears and a few plasma cells was most marked in the papillary region, being perivascular in the deeper portions of the section.

DISCUSSION

DR. J. J. HECHT: I believe that this is a healing sycosis.

DR. H. T. PHILLIPS: I believe that it is a case of neurotic excoriation. The patient admits that he has a pair of tweezers and that he picks at the lesions every night. Originally he probably had a slight acne or a folliculitis which he has assiduously worked at with forceps until the present lesions have resulted.

DR. W. H. GUY: My diagnosis was that of neurotic excoriation, and the case was presented to elicit discussion with reference to the accuracy of the diagnosis.

ÉRYTHÈME ANNULAIRE CENTRIFUGE. Presented by DR. G. J. BUSMAN and DR. A. R. WOODBURNE.

M. S., a man, aged 20, single, presented circumscribed, annular, discrete and confluent serpiginous lesions varying in size on the arms, chest, back, hands and feet. The individual lesion was a small central wheal-like lesion with a fading center and a raised edematous rim at the border. The lesions varied in size from 1 to 2 cm. There was no scaling and practically no residual pigmentation. The condition began in September, 1930, and since that time the patient had never been entirely free from it. The case resembled, clinically, case 1 of Graham and Throne (Graham, T. N., and Throne, B.: Érythème Annulaire Centrifuge, ARCH. DERMAT. & SYPH. **22**:777 [Nov.] 1930). The lesions, however, were somewhat more evanescent than the lesions present in their cases. The condition was somewhat analogous to urticaria and erythema multiforme.

The patient had septic tonsils which were removed one week prior to presentation. His blood pressure was 94 systolic and 60 diastolic. The physical examination gave negative results. The blood count showed: hemoglobin 100 per cent; red blood cells, 5,100,000; white blood cells, 7,200. Analysis of the blood revealed 72 mg. of nonprotein nitrogen and 42 mg. of urea nitrogen; the specimen, however, was taken a few days after operation.

DISCUSSION

DR. A. R. WOODBURNE: One point that has not been brought out is that, according to the patient, these lesions began as papules the size of a dime which extended rapidly to the size shown.

MELANOTIC SARCOMA? Presented by DR. H. T. PHILLIPS and DR. W. J. MORGINSON.

J. M., a white girl, at the age of 3 months presented a slightly raised, firm, pea-sized, reddish-brown nodule on the occiput. This was covered by an easily removable thin crust. Three or four weeks later, two similar lesions appeared, one over each scapula. Since the onset, ten similar lesions have occurred on the neck, arms, legs and trunk. Some were preceded by roundish, grayish-black macular areas. Each macule always subsequently showed a nodule in the center although all nodules were not encircled by macules. There were no involuted lesions and no subjective symptoms. No history of the ingestion of drugs was obtained.

The patient was first observed on Jan. 30, 1931, at that time she was 5 months old. About ten slightly raised, flat or slightly domed, smooth, reddish-brown, firm nodules were noticed on the occiput, shoulders, neck, trunk, arms and legs. Two were large enough to be termed small plaques. All were superficial and freely movable with the skin. A few were covered by thin, easily removable crusts. About half the nodules appeared in the center of dime-sized grayish-black macules and several such macules were noticed without projecting nodules. The nodules measured from 3 by 3 mm. to 10 by 11 mm., and the largest macule was 20 mm. in diameter. Two adjacent nodules seemed to coalesce. There was no dermographism.

Microscopic Section.—The primary lesion appeared to be in the deeper layers of the epidermis. This was shown in the areas where the cells exhibited a clearing or an edematous change in the cytoplasm and the nuclei tended to become hyperchromatic. The cells apparently lost their intercellular processes and appeared to extend into the subcutaneous tissue. The latter was diffusely infiltrated with cells which varied somewhat in shape. They were usually somewhat round with pale vesicular nuclei. The cytoplasm was not abundant. Some cells stained rather deeply and were not pigmented; one or two cells, however, showed yellowish granules. The cells were often separated by fine capillaries usually containing red blood cells. There was infiltration of the entire section with the cells described, and occasionally there were atypical mitotic figures even in the deepest part of the tissue. Our interpretation of this growth was as follows: The section showed no characteristics of an epidermoid or basal cell carcinoma. The cells did not show any tendency toward the formation of fibrils nor did they look like fibroblasts, either mature or immature. Although there were no pigment granules in the cytoplasm, except possibly in one or two of the cells, it was thought that the cells might be immature melanoblasts and that there was slight or no evidence of malignancy.

DISCUSSION

DR. FREDERICK AMSHELL: I believe that this is a case of xanthoma tuberosum multiplex, although the microscopic section does not conform to the microscopic picture of that eruption.

DR. H. G. WERTHEIMER: I believe that this case is, clinically, one of xanthoma tuberosum multiplex. The lesions were scattered nodules ranging in color from yellowish to brownish red. This case resembled one that I presented before the Society a few years ago.

DR. A. R. WOODBURNE: In the section were many large eosinophilic mononuclear cells, and with the clinical appearance the diagnosis might possibly be a nodular urticaria pigmentosa.

DR. STANLEY CRAWFORD: I thought that the lesions were tuberous xanthomas or xanthofibromas. The small, firm, pearl-yellow nodules were slightly suggestive of papular syphilis, but lacked the coppery color; and the fact that they began as a brownish tache and developed into raised, yellowish-red, almost pedunculated nodules was suggestive clinically of xanthomas. I thought that the histologic section showed many xanthoma cells and some fibrous tissue.

DR. G. J. BUSMAN: I propose a diagnosis of xanthoma urticaria pigmentosa and possibly syphilis. The involution of the lesions is suggestive of the large condylomatous papules of secondary syphilis. I would get a Wassermann reaction and a roentgenogram of the thymus. I would favor a diagnosis of xanthoma tuberosum multiplex.

DR. W. H. GUY: I could not offer a diagnosis. I thought of nodular urticaria pigmentosa and felt that additional opinions concerning the pathologic conditions should be obtained, as the prognosis and the therapy hinge entirely on a proper diagnosis.

NEW YORK ACADEMY OF MEDICINE, SECTION OF DERMATOLOGY AND SYPHILIS

A. BENSON CANNON, M.D., *Secretary*

Regular Meeting, March 3, 1931

JOSEPH J. ELLER, M.D., *in the Chair*

A CASE FOR DIAGNOSIS (KAPOSI'S SARCOMA?). Presented by DR. ADOLPH ROSTENBERG.

A man, aged 58, born in Poland, stated that the condition had started four years prior to presentation. In the middle of the sole of the left foot there were a number of isolated reddish to bluish macules, from 3 to 6 cm. in diameter, which on pressure appeared to be the walls of bullae. One of them discharged a clear fluid. There was a bandlike area underneath all the toes on the sole; it was about 8 cm. in width, and had the same reddish appearance as the smaller lesions and appeared to be also the wall of a large continuous bulla. On the dorsal surface there was one prominent lesion about the size of a large pea, located on the second toe, which on pressure also appeared to be bullous. The first and second toes were considerably enlarged in size and thickness, the bony structures being also involved.

Several examinations of scrapings from between the toes for a fungus gave negative results; as did cultures of the exuding fluid.

Biopsy on the epithelium showed definite evidence of edema; the papillary layer showed hyaline degeneration. There were many rather thick-walled capillaries. Polymorphonuclears, plasma cells and lymphocytes were present. Deeper in the corium there were numerous large blood vessels, their endothelium showing definite evidence of proliferation. From these blood channels there was an outgrowth of spindle-shaped cells. Numerous red blood cells were seen in the vessels and free in the tissues.

The pathologic diagnosis was fibro-angioma. This diagnosis was not incompatible with changes noted in Kaposi's sarcoma.

DISCUSSION

DR. SIGMUND POLLITZER: The occurrence of bullae over these lesions is unusual. Otherwise, I think in view of the history and appearance of the lesion, that the condition is Kaposi's sarcoma.

DR. LOUIS CHARGIN: I agree with the diagnosis. I do not think it is so rare to see bullous lesions. They have been described in Kaposi's sarcoma by European

and American observers. When in addition to the blood vessels the lymph vessels become affected, as they do in some cases, bullae may be produced that may be large enough to be clinically diagnosed. That is what happened in this case.

DR. ADOLPH ROSTENBERG: Comparing a few cases on record of the same type, the unusual feature is that there are infiltrated lesions. I have had the patient under observation for only a month or so. The doctor who treated him previously said that the patient always had had bullae.

TRICHOPHYTOSIS OF THE BODY. Presented by DR. A. BENSON CANNON.

R. M., a man, aged 28, an orderly, born in the United States, had had an itching rash for one and a half months. The rash had started as red papules on the arms, later involving the legs and finally appearing on the trunk. The head was not involved. The lesions itched intensely, and the patient scratched them, causing excoriations and aggravation. He had slept poorly, but he had not taken drugs.

Examination showed on the extensor surfaces, principally of the arms and legs, circinate, sharply marginated, crusted, weeping areas on indurated erythematous bases. On the trunk were pinhead-sized erythematous papules. Some lesions were ring-shaped with clearing centers and vesicular or crusted margins.

Scrapings and a culture of the skin were positive for fungi. The Wassermann reaction of the blood was negative. Biopsy showed chronic granuloma.

Treatment had consisted of the administration of 10 per cent oil of cade in boric acid and staphylococcus vaccines.

DISCUSSION

DR. CHARLES M. WILLIAMS: I examined this patient with great care, but could find no clinical evidence of tinea. Of course, I cannot affirm that there were no ringworm organisms on the skin, for in many cases where the spaces between the toes show only a tiny crack or the slightest maceration, one may find mycelia in abundance. In a case of this kind, however, in which the appearance is that of extensive eczema, I should want more proof than has yet been offered that the symptoms are due to a mycotic infection. Diagnoses of tinea and trichophytid are hobbies that are being ridden to death. It has become the fashion to call every scaly or vesicular eruption on the hands trichophytid without evidence that the patient ever had a mycotic infection. The mere presence of parasites on the toes is not sufficient proof. Statistics show that 60 per cent or more of men are infected with tinea: are we justified in making a diagnosis of trichophytid for any eruption these patients may show? This whole subject is so new that a most careful examination is required. While I believe that many eruptions with an obscure etiology are to be explained as trichophytid, we should be extremely cautious in making the diagnosis. Only by the most careful observation and recording of suspicious cases, with careful microscopic investigation and with accurate account of the course and progress of the disease can we hope to learn anything. In other words, in any attempt to push forward the bounds of our knowledge, we should be ultraconservative and ultracritical.

DR. FRED D. WEIDMAN, Philadelphia (by invitation): Dr. Williams and I had a conference concerning this patient and asked one another where we should stop in this matter of dermatophytids. I think, as he stated, that one has to proceed very carefully, otherwise the status of the dermatophytids is going to suffer.

In this case the condition looks to me more like eczema—not trichophytid. There are infiltrated, scaly patches, although it is true that the flexures are not particularly affected. This does not fit in with any of the usual expressions of dermatophytid. The condition is not scarlatiniform, morbilliform or lichenoid, nor can I see any obvious primary focus in which the dermatosis may have had its foothold. Although the patient has deformed toe-nails, it did not seem to me that there was an acute focus to give birth to the dermatophytosis.

DR. A. BENSON CANNON: Because the lesions of this patient resembled an infectious eczematoid dermatitis so much more than they did a tinea infection, the former diagnosis was made. I, too, was surprised when a routine examination, as well as the cultures, gave positive results for tinea. I think that one cannot get an exact picture of the condition as we saw it ten days ago, as it has been modified by the medication that the patient has been using, and I suspect that many of the inflamed and crusted areas now present are due partially to the remedies. In the beginning, there were a few circinate lesions on the arms with slightly scaly centers and crusted and vesicular margins, resembling tinea circinata.

I believe that on the patient's admission Dr. Kingsbury favored the clinical diagnosis of tinea. I find that I have been inclined to underestimate the part that ringworm infections play in the production of cases of so-called eczematoid dermatitis. I have often been surprised at the frequency with which I have been able to find clinical evidence and positive smears and cultures of tinea on the feet and nails in subjects suffering with sharply marginated eczematoid areas over the extremities and body, and the disappearance or improvement of these lesions when these ringworm infections of the feet cleared up. I believe that in all infectious eczematoid conditions of the skin in which one is unable to find the infecting source, the toes should be carefully investigated for evidence of tinea, so I have systemically instituted the practice of ruling out a focus of tinea before making a diagnosis of eczematoid dermatitis in such cases.

ELEPHANTIASIS NOSTRAS (SOLID EDEMA). Presented by DR. ELIAS ABRAMOWITZ.

B. L., a woman, aged 42, a patient from the New York Post-Graduate Clinic, born in Austria, married, had four children living and had had no miscarriages. Redness and swelling of the left leg developed for the first time twenty-seven years prior to presentation; operation had to be performed. Since then the redness and swelling had recurred every few months, being accompanied by marked chills. After each attack the leg was more swollen, particularly during the past two years. From the knee to the ankle the circumference of the left leg was about twice that of the right leg. No pitting or tenderness was present, but the skin showed a slight livid discoloration. The toes of the left foot presented a vegetating appearance from numerous lymphatic vesicles caused by lymph stasis. Several depressed scars from the operation performed many years previously were present. The patient was otherwise in good health.

Several blood smears for Filaria were negative. With the exception of a white cell count of 14,000, the examination of the blood gave normal results. The urine was also normal. The Wassermann test was negative several times.

DISCUSSION

DR. ELIAS ABRAMOWITZ: Regarding treatment, I am thinking of using a method with which I have had some success, i. e., therapy with fractional doses of roentgen rays, with injections of streptococcus vaccine.

URTICARIA PIGMENTOSA (?). Presented by DR. JOSIAH P. THORNLEY.

S. C., a boy, aged 5, colored, born in the United States, presented pinhead to lentil-sized maculopapular lesions. Some of the nodules and papules had well circumscribed and discrete borders; some had become red and raised when friction was applied.

DISCUSSION

DR. JOSIAH P. THORNLEY: Fortunately, the biopsy report has just come. Apparently many nevoid cells but no mast cells are present.

DR. SIGMUND POLLITZER: I find to my surprise that the picture is one of nevus. Clinically, the condition looked like urticaria pigmentosa. It is possible that

a nevus was excised because of the impression that all the lesions were of that character, but that is unlikely. I should like to ask how many pigmented lesions are present?

It would be extraordinary if a child had such a number of pigmented nevi, all having the appearance of urticaria pigmentosa. I should want to study the case further and with better facilities—better stains and a better microscope.

Dr. Fred D. Weidman: I saw the sections before the meeting, and thought that they might represent urticaria pigmentosa. At that time the question was raised whether or not there were clusters of nevus cells. Certainly there are no xanthoma cells present. It seems to me that there is too uniform a distribution of cells throughout the lesion for an ordinary nevus. My feeling is that this would be found to be a true mast cell tumor if the appropriate dyes were applied, and that this is a case of urticaria pigmentosa, assuming that a representative lesion was selected.

Dr. J. Frank Fraser: The clinical picture is suggestive of urticaria pigmentosa with xanthoma-like lesions. I agree with Dr. Weidman that there is no histologic evidence of xanthoma. The cells resemble nevus cells, but I should like to examine more sections before making a final pronouncement.

Dr. Joseph J. Eller: Over the left scapula there was a wheal on a lesion which resulted from friction.

Dr. Frank C. Combes: I was particularly interested in this case because histologically it resembles the case of a patient I presented several months ago, in which urticaria pigmentosa was suggested as a diagnosis. The patient was a young woman with numerous lesions of sixteen years' duration beneath the breasts, on the abdomen and on the neck.

Three diagnoses suggest themselves: xanthoma tuberosum, urticaria pigmentosa and the condition described by McDonough, Parkes Webber and others as nevo-xantho-endothelioma. In this case the infiltration is diffuse and consists of polyhedral cells suggestive of nevus cells of the endotheliomatous type. In many of the cases McDonough described, the yellow color was due to fatty degeneration. Special stains for fat droplets and mast cells should be done in this case before a definite diagnosis can be determined.

Dr. Fred D. Weidman: I think that in cases in which details of cytology like those involved in this case are concerned an opinion cannot be fairly rendered after a hurried examination; it is necessary to pore over the matter in the laboratory and not to make a snap diagnosis. The cells appear to be polyhedral in form; I think that I can see change in the nuclei, some clumping of the chromatin that suggests plasma cells, but such details require optimum conditions in the way of slides and illumination.

Lupus Miliaris Facei. Presented by Dr. Louis Chargin.

L. M., a man, aged 46, a salesman, married for twenty-one years and the father of three healthy children, in 1913, about seventeen years prior to presentation, had an abdominal operation, the nature of which he did not know. He stated that a tumor had been removed. His general health was good. Occasionally he suffered from slight pains in the joints.

The eruption began about five months prior to presentation. It was most marked over the middle of the face, with one group of lesions on the forehead at the hair border on the left side. The lesions were discrete and arranged in groups, and were most thickly crowded in the nasolabial fold on the right side. There were lesions on the chin, nose, forehead and lips and only a few on the cheeks. They varied in size from that of a pinhead to that of a small pea. They were rounded and a few were capped by a tiny pustule. They were reddish or reddish brown. There was slight scaling of some of the lesions. They were of a soft texture. Comedones were absent. The Wassermann test was negative. The

tuberculin test was 2 plus. There was slight itching occasionally. Biopsy showed the picture of tuberculosis.

DISCUSSION

DR. EDWARD MALONEY: I agree with the diagnosis. Clinically, the condition is the one stated in the diagnosis, and it seems to have been proved by histologic examination, which showed tuberculous tissue.

DR. LOUIS CHARGIN: The general physical examination gave entirely negative results, but tuberculin tests were positive.

DR. MARION SULZBERGER: I should like to know why Dr. Chargin does not call this rosacea-like tuberculid of Lewandowsky?

DR. LOUIS CHARGIN: I called the eruption lupus miliaris facei, because this is the name given it by many observers. Tilbury Fox called it lupus follicularis disseminatus; it is also called lupus miliaris disseminatus. While several names are used, the process is the same. Of course, it is not rosacea. Most of the patients apparently get well spontaneously.

DR. MARION SULZBERGER: Both lupus miliaris facei and rosacea-like tuberculid of Lewandowsky are tuberculids of the face. The latter has nothing to do with acne rosacea and is merely a clinical form of skin tuberculosis.

ERYTHEMA MULTIFORME BULLOSUM WITH PIGMENTATION AND VITILIGO. Presented by DR. A. BENSON CANNON.

A. R., a man, aged 47, a storekeper, born in Italy, had been admitted to the City Hospital on Dec. 2, 1930. The onset of the condition had occurred six months prior to presentation, with a lesion on the left thigh which had begun as a papule and had grown to 3 inches (7.62 cm.) in diameter; it was not painful and did not develop into a bleb. The patient had not received arsenic. Six weeks prior to presentation he noticed blisters developing on the body; they were scattered and numerous. The patient had been admitted to the New York Skin and Cancer hospital two weeks prior to his admission to the City Hospital. He felt ill at that time. There was no itching. Where the lesions had disappeared, there were dark brown pigmented and white spots varying in size from that of a pea to that of a palm.

Examination of the nose and throat gave negative results. There was a lesion in the mouth. The heart, lungs and abdomen were normal. Blebs varying from 1 cm. to 6 cm. in diameter were distributed over the entire body, especially over the extremities. There was a small inflammatory area around the blebs. Erythematous macular patches were present on the back when the patient was admitted. Over the body and back there were many patches with a psoriatic appearance, having elevated borders and gyrate outlines.

The Wassermann reaction was 4 plus. The urine was normal, except for many pus cells. The white blood count was 16,000. The patient received calcium gluconate.

DISCUSSION

DR. EUGENE TRAUB: According to the patient, the duration of the condition is slightly less than six months, and after such a short period it is difficult to judge what the final outcome will be. The lesions that the patient presents are of a typical iris form, arising from an erythematous base, and are generally considered as classic for erythema multiforme; on the other hand, I have seen this exact type of lesion in a patient who eventually died of pemphigus vulgaris. This brings up a phase of discussion often futile, and the point certainly cannot be definitely settled now. The only way a final diagnosis can be made in such a case is to observe the patient over a period of years. However, he appears too ill and has lost too much weight in a comparatively short time for the usual case of erythema multifore, even with bullous lesions, and I believe that the eventual diagnosis will be pemphigus.

DR. ISAAC R. PELS, Baltimore (by invitation): I usually arise to apologize for the accuracy of tests which Dr. Macht and I suggested in the diagnosis of pemphigus. We are greatly interested in the relationship of erythema multiforme of the bullous type to pemphigus, as judged by readings of this test. In the last report made recently, there were recorded a series of twenty-two cases of erythema multiforme bullosum, the diagnoses of which were sent in by various colleagues and some of which occasionally gave what we consider a positive test by this method. In view of that, we speculated somewhat regarding the clinical aspect of erythema multiforme of the bullous type in its relationship to pemphigus. Thus, on the basis of toxicity being present both in pemphigus and in certain types of erythema multiforme bullosum, we suggested that probably there was a close relationship between these bullous types and pemphigus. This opinion was based further on the fact that we have observed a number of instances, as others have, in which erythema multiforme, with lesions in the mouth and bullous lesions elsewhere, eventually developed into pemphigus. Hence, any conclusion one may draw from the value of the test would be merely speculative.

We are interested in obtaining as many specimens as possible in order to leave the accuracy of the test to the judgment of the future.

I was interested to know that erythema multiforme bullosum could last as long as this. In my experience, which is limited, it seems to me erythema multiforme bullosum is usually a transient disease. In certain instances, in which we have seen a borderline case of erythema multiforme bullosum, our test has given a normal reading. Thus we cannot say definitely where erythema multiforme belongs in relation to pemphigus, except to make the suggestion that it has a toxic element in a large number of instances, and that some day we may be able to group it close to pemphigus, if not actually to call it pemphigus.

DR. CHARLES WOLF: I am interested to know whether the areas of vitiligo are primary or secondary. If primary, it is proper to call the condition vitiligo; if the depigmentation is due to the eruption, I think it should be called depigmentation.

DR. SIGMUND POLLITZER: I am very glad to hear Dr. Pels' remarks based on the results of his and Dr. Macht's tests for toxicity in these cases. For a great many years my attitude toward erythema multiforme bullosum has been that the diagnosis should always be made with a question mark after it. I have seen so many cases diagnosed as erythema multiforme bullosum that progressed after a few months into frank pemphigus with the usual termination of pemphigus that I have come to look askance at a diagnosis of erythema multiforme bullosum.

Dr. Pels tells us that in twenty-two cases diagnosed as erythema multiforme bullosum by competent dermatologists, the percentage of positive tests is about the same as in pemphigus. I should interpret that as probably meaning that those cases diagnosed by competent dermatologists as erythema multiforme bullosum were really cases of pemphigus.

DR. FRANK C. COMBES: I think that it would be worth while for Dr. Cannon to follow this case and report on it later. It would also be of interest to have Dr. Pels make his test for pemphigus on the blood.

DR. A. BENSON CANNON: We were interested in this patient primarily because on admission the diagnosis of pemphigus was made (after the case had been studied at the New York Skin and Cancer Hospital for a few weeks), although the cutaneous lesions were as characteristic of erythema multiforme bullosum as they are now. I do not know of any way in which one can arrive at a diagnosis of pemphigus other than by clinical symptoms and signs, unless it be by Dr. Pels' test. I have not experienced the difficulty in making a diagnosis of pemphigus that the previous speakers have had. I think that a physician's ability to make a diagnosis of pemphigus depends largely on his clinical skill. I often find that the diagnosis is evident when the patient is suffering from pemphigus. I believe it is a mistake to think that persons suffering with erythema multiforme bullosum do not have constitutional symptoms. I think that most patients with erythema

multiforme bullosum have a milder or more severe malaise, general weakness and depression and that the physical debility experienced by the patient is largely dependent on the degree of toxicity. I happen to have under observation at present five patients who show typical lesions of bullous erythema multiforme that have existed from four to eleven months without entirely clearing up. The patient shown has been practically free from lesions on several occasions, owing, I suspect, largely to injections of calcium. This repeated clearing up of the lesions is not often seen in persons suffering from pemphigus. I was interested in the excessive pigmentation and the depigmented areas, conditions that we have not often observed to such pronounced degree in either bullous erythema multiforme or pemphigus. I wondered whether arsenic did not play a part in the production of these pigmentary changes in the skin, and with this in view a piece of skin has been removed and specimens of the blood and urine taken for arsenical determination.

TABES DORSALIS FOLLOWING INJURY. Presented by DR. A. BENSON CANNON.

W. G., a man, aged 65, a janitor, born in the United States, stated that he had had no difficulty in walking until he had been struck by an automobile (the fender struck the legs) on May 12, 1930, following which he had been taken to the City Hospital for laceration of the scalp. There was no fracture. When he was allowed to be up, he had had difficulty in walking and pains in the legs. He said that he had had a chancre forty-five years prior to the accident. He received treatment by mouth only.

Examination showed the pupils practically fixed to light, the left being larger than the right. The knee jerks were sluggish. There was a positive Babinski sign on the right side. The Romberg sign was also positive. The patient had an unsteady gait. The liver was palpated 5 cm. below the costal margin. The heart was normal, as were the lungs. The patient had small ulcers on the front of the legs; some were punched-out ulcers.

The Wassermann test of the spinal fluid was negative; the colloidal gold reaction as 0,001,221,000; the Kahn and the Wassermann tests of the blood were negative repeatedly. Examination of the spinal fluid showed 10 cells, no globulin and a positive reaction for sugar.

DISCUSSION

DR. JOSEPH J. ELLER: This is an interesting case, because it illustrates that in quiescent tabes dorsalis an injury may bring on acute symptoms.

DR. ADOLPH ROSTENBERG: It is well known that gummatous lesions may develop in a syphilitic person after an injury. If one considers tabes dorsalis a tertiary syphilid, one can understand that a shock to the nervous system might bring on active symptoms in a latent case.

DR. JOSIAH P. THORNLEY: It seems to me somewhat difficult to understand how the degeneration of the columns of Burdach and Goll and other pathologic changes of locomotor ataxia could be established in such a short period. Ordinarily, the disease runs a quiet course for a while, and then suddenly ataxia and serious symptoms develop. The prolonged latency and the trifling and misleading nature of the early symptoms are well known characteristics. It would be interesting to know whether or not the patient is suing for damages.

DR. HERMAN GOODMAN: I wish to report the following case, which is similar to the one presented by Dr. Cannon: A man driving his car along Central Park West was forced by an accident to drive on the curb and against the 3-foot stone enclosure of Central Park. Immediately after the accident, and while he was still in the car, he was unable to move his legs to drive the car off the sidewalk. He showed typical tabes dorsalis. I do not know how to account for the sudden onset of clinical symptoms. It is impossible to imagine that the complete pathologic condition of the spinal cord developed in thirty seconds.

DR. SIGMUND POLLITZER: Did any one see the patient before he had the accident to determine whether or not he showed signs of locomotor ataxia? I do not see any reason to assume that the accident had any relation to the symptoms. It seems probable that the symptoms of tabes were first noticed after the accident because the patient was properly examined for the first time in the hospital to which he was taken.

DR. A. BENSON CANNON: This case is of interest chiefly from the medico-legal angle. It is a well known fact that in patients with asymptomatic dementia paralytica acute symptoms may develop following a severe accident or a violent nervous shock. The same thing may happen in the case of tabes and optic atrophy. We recognize the frequency of gumma at the site of injury. Most gummas appear on surfaces where trauma is most apt to occur. Dr. Klauder and Dr. Soloman have written extensively on this subject, as have numerous European physicians. Dr. Stokes also comments on the relationship of trauma and the development of late syphilitic lesions. I think that if one looks most carefully into the subject, one will find a closer association between the development of symptoms of neurologic syphilis and trauma than has been suspected. We know that in the syphilitic patient doing work requiring much use of the eyes optic atrophy is apt to develop, and in a person using the lower extremities symptoms of tabes are likely to develop, while in the person who does a great deal of mental work symptoms of dementia paralytica develop. If this observation is correct, I can understand how trauma following a nervous shock or injury could produce symptoms of tabes, dementia paralytic, optic atrophy or gumma in a syphilitic person.

ARSENICAL DERMATITIS FOLLOWED BY KERATOSIS AND ALOPECIA. Presented by DR. A. BENSON CANNON.

J. M., a man, aged 31, a fireman, was first seen on Sept. 27, 1930, with lesions of secondary syphilis on the scrotum and thighs of one month's duration. The Wassermann reaction of the blood was 4 plus, and dark-field examination gave positive results. The patient received four injections of neoarsphenamine and left the hospital against advice. He received four more injections of neoarsphenamine after leaving the hospital, and two weeks later an erythematous rash appeared over the entire body. He had been drinking heavily and eating poorly since leaving the hospital.

The patient had been readmitted to the City Hospital on Dec. 4, 1930, with a generalized eruption and a red throat and tongue and a beefy, red and smooth buccal mucous membrane. The urine was normal, and the Wassermann test of the blood was repeatedly negative. Gastric analysis did not show free hydrochloric acid.

The toxic rash became exfoliative and disappeared. The face became greatly swollen, with conjunctival hemorrhages during the exfoliating stage of the eruption. As the rash healed, hyperkeratosis of the palms and soles appeared, and since then alopecia of the axillary and pubic regions, the scalp and the eyebrows had developed. The keratosis of the palms had disappeared with local treatment. The finger-nails showed dystrophy.

DISCUSSION

DR. FRANK C. COMBES: I have never seen such extensive keratosis of the feet following the administration of arsphenamine, which is a trivalent arsenical. Dr. Osborne of Buffalo (ARCH. DERMAT. & SYPH. **18**:37 [July] 1928) demonstrated histologically the differences in location of trivalent and pentavalent arsenicals in the skin. Trivalent arsenic is deposited perivascularly, and the usual cutaneous reaction is vascular, such as erythema or exfoliative dermatitis. Pentavalent arsenic is deposited in the epidermis and gives rise to keratoses. In this case it would be interesting to determine by means of biopsy the location of the arsenic in the cutis, whether or not it has a perivascular distribution as is usual after the administration of arsphenamine.

DR. ELIAS ABRAMOWITZ: Soon after the arsphenamines were introduced, it was denied that keratoses could develop following their use. The literature now shows that these lesions develop just as with the pentavalent arsenicals, but they are not permanent as are those occuring after the use of the pentavalent compounds, and they do not lead to the development of epithelioma. The marked improvement in the lesions since they have appeared agrees with the clinical facts.

DR. JOSEPH J. ELLER: Dr. Osborne brought out that in a dermatitis from the use of trivalent arsenicals or arsphenamines, the arsenic was found deposited in the greatest proportion in the corium and in the walls and lumens of the sweat and sebaceous glands and their ducts, and that in dermatitis from the use of pentavalent arsenic, such as solution of potassium arsenite and sodium arsenate, etc., nearly all of the arsenic was found to be localized in the epidermis.

ARSPHENAMINE DERMATITIS AND VITILIGO. Presented by DR. A. BENSON CANNON.

I. T., a woman, aged 39, married, stated that in February, 1930, she had been referred from the internal medical department of the Vanderbilt Clinic with a 4 plus Wassermann reaction. From February until May, 1930, she had received nine intravenous injections of neoarsphenamine, with a total dose of 3.8 Gm., and 9 intramuscular injections of a bismuth preparation. In June, a dermatitis developed, and after a lapse of one month the patient returned to the clinic with an exfoliating generalized maculopapular eruption, with dark pigmented spots over the neck, chest, back and arms. She received about fifteen intravenous injections of sodium thiosulphate until September when the dermatitis subsided, leaving the dark pigmented spots all over the body. In December, she again reappeared in the clinic with new hyperpigmented spots on the face and two dime-sized areas of vitiligo on the chest and chin.

When the patient was seen in the clinic on March 3, 1931, there were fading hyperpigmented spots on the trunk extremities and face, and areas of vitiligo were see on the chest, chin and upper lip.

Laboratory observations were: A Wassermann test of the blood was made on July 29, 1930. The reaction with the cholesterol antigen was 3 plus; with an alcohol antigen, 2 plus, and the Kahn reaction was 0.4; on December 2, the Wassermann reaction with the cholesterol antigen was 2 plus; with the alcohol antigen, 2 plus, and the Kahn reaction was 6 plus; on Jan. 14, 1931, the Wassermann test was negative, and the Kahn test, 3 plus.

The chemical analysis of the blood made on July 24, 1930, showed: sodium chloride, 503.3 mg. per hundred cubic centimeters; sugar, 111.2 mg.; bile, 10.13 mg.; urea nitrogen, 7.60 mg., and uric acid, 2.08 mg.; on Sept. 2, 1930: sodium chloride, 462.7 mg.; sugar, 94.8 mg.; bile, 0; urea nitrogen, 15.75 mg., and uric acid, 2.13 mg.

A test for arsenic in the blood made on July 24 showed 0.008 mg.; on July 31, 0.15 mg.; August 12, 0.036 mg., and on September 4, 0.05 mg. per 100 Gm. dry specimen. A test for arsenic in the urine made on July 28, 1930, showed 0.359 mg.; on July 31, 0.146 mg.; on August 12, 0.271 mg., and on September 4, 0.0 mg. per 100 Gm. of dry specimen.

The basal metabolic reading showed: pulse rate, 80; temperature, 97.8 F.; weight, 152 pounds (68.9 Kg.), and basal metabolic rate, 7 per cent.

DISCUSSION

DR. ELIAS ABRAMOWITZ: This is a leukomelanoderma following a generalized arsenical dermatitis.

DR. DAVID BLOOM: I am inclined to believe that in this patient the vitiliginous spots are a consequence of the dermatitis rather than an immediate effect of the administration of arsphenamine. In colored patients, vitiligo is frequently noted following dermatitis.

DR. FRED D. WEIDMAN: The black discoloration impressed me particularly. In places the skin appears as though it were covered with shoe polish—a definite coal black. In the last issue of the ARCHIVES (**26**:266 [Feb.] 1931) a case of argyria was reported in which discussion arose as to why this color was present in some subjects and not in others and as to whether silver or bismuth also played a part in producing the discoloration. Bismuth preparations as well as arsenic had been employed in the case.

It would be interesting to determine whether there was a deposit of bismuth in the skin of this patient. In connection with the conjoint use of silver and other metallic preparations (arsenic, mercury, bismuth), one should recall that one of the standard methods of photographic intensification is the use of mercury. The silvered negative is dipped in mercuric chloride solution and reduced in sulphite. There is an adsorptive or amalgamative action, which endows the process with its intensive effect. I am curious to know whether there may be synergistic action between arsphenamine on the one hand, and bismuth, arsenic and silver on the other; when arsenic is once in the skin, the mercury and bismuth are held there, as they might not be otherwise.

DR. LEO SPIEGEL: My impression is that the hyperpigmentation in this case is probably due to melanin. I believe that it is the end-result of an inflammatory reaction of the skin due to arsenic. The discoloration of the skin in the cases of argyria that I reported a few months ago does not resemble that in the case presented. In the cases of argyria the discoloration was evenly distributed and was not the result of an evident inflammatory condition. In the case presented the pigmentation is spotty and mottled and appears much darker than in the cases of argyria.

In order to differentiate melanin from deposits of bismuth and silver in the skin the following points should be borne in mind: Melanin appears in the epidermis and cutis. It is usually intracellular, but when found extracellularly it is usually in small irregular clumps or masses, and its presence can be confirmed by staining with silver nitrate. When dark-field illumination is done, as in the cases reported by Habermann and me, the melanin is not visible, as the particles are not refractile and will not stand out as brilliant particles as silver granules do. Furthermore, silver granules do not invade the cutis and are always extracellular, except when found in the endothelial cells. These granules can be intensified by developing with the various developers as Dr. Weidman mentioned. In sections of tissue bismuth occurs as bismuth sulphide. It is decolorized by superhydrol and becomes white bismuth sulphate and is again changed to black sulphide of bismuth when immersed in a hydrogen sulphide solution.

DR. MARION SULZBERGER: I think that we all must have been impressed by the frequency with which depigmentation and hyperpigmentation following antisyphilitic therapy are seen, particularly following arsphenamine dermatitis. I think that the point Dr. Weidman brought out, i. e., that there may be a synergistic action between the various drugs, is well made. To the list that he gave, one might add sodium thiosulphate. I think these clues should be followed up to determine what combinations of drugs have been present in the cases in which the pigmentary changes occur. All the patients I have seen have received both arsphenamine and sodium thiosulphate.

DR. A. BENSON CANNON: I have seen many cases of jet black spots in colored people following arsphenamine dermatitis, but white or depigmented areas are rare. We have four similar cases of vitiligo-like spots and pigmented areas in colored people following arsphenamine dermatitis; I showed one of these patients at the previous meeting. We wondered about the association of these white spots with symptoms in persons with arsenical poisoning. Should arsenic be found responsible for the production of these white areas, one might suspect it as a possible cause of vitiligo in persons who have not received treatment with arsphenamine.

ACTINOMYCOSIS. Presented by DR. ELIAS ABRAMOWITZ.

E. R., a man, aged 33, born in Russia, first called at the clinic of the New York Post-Graduate Hospital on Feb. 9, 1931. He stated that five months prior to presentation, shortly after the extraction of a tooth on the left side, he first noticed a lump on the left jaw; this was opened by a physician and drained. The swelling recurred shortly afterward and was opened; a yellowish watery fluid drained from it. The lesion again recurred and opened spontaneously. The swelling was very painful.

On examination, a walnut-sized, indurated, nodular mass was seen on the left side of the chin, in the center of which there was a cicatrix about 1¼ inches (3.17 cm.) long, resulting from the incision. The lesion was bluish red and painful when it was pressed. The patient had had syphilis eleven years previously. At that time he had been given injections of arsphenamine and mercury, and was discharged from the Vanderbilt Clinic one year later after blood and spinal fluid tests were negative.

The Wassermann test made on January 24 was negative.

The ray fungus was demonstrated microscopically. The lesion had decreased considerably following the administration of a filtered erythema dose of x-rays given on February 18. At the same time the patient was given a saturated solution of potassium iodide, 10 minims (0.18 cc.) three times a day, and this dose was increased a drop daily.

ERYTHEMA INDURATUM, PAPULONECROTIC TUBERCULID, TUBERCULOUS ELBOW AND RADIODERMATITIS. Presented by DR. HERMAN GOODMAN.

The patient, aged 36, entered the skin clinic of the New York Skin and Cancer Hospital on Jan. 29, 1931, because of ulcers of the legs and an eruption on the face, arms and thighs. For four years chronic ulcers had developed at irregular intervals on the back of the legs and on healing had left depressed scars. For three months he had had "pimples" on the face, arms and legs that had also developed at irregular intervals. A "pimple" would last about four weeks and heal, leaving a small scar. For twenty-five years he had had a draining sinus of the left elbow. This lesion had failed to heal after many kinds of treatment, including roentgenotherapy. The skin surrounding the elbow had become brown. The family history and the past personal history were irrelevant. The Wassermann test of the blood, chemical analysis of the blood and urinalysis gave negative results.

Roentgen examination gave negative results for evidence of tuberculosis of the chest and suggested an old tuberculous process of the left elbow.

LYMPHOGRANULOMA INGUINALE. Presented by DR. A. BENSON CANNON.

A. H., a man, aged 41, a roofer, had been admitted to the City Hospital about two weeks prior to presentation, complaining of swollen and tender inguinal glands of a month's duration. He had never been in the tropics, but said that he had had frequent intercourse with a colored woman. He had first noticed swelling of the right inguinal gland Jan. 3, 1931, with a slight tenderness of the glands on pressure. Shortly afterward a tiny ulceration appeared on the prepuce. Although the penile lesion remained practically the same, the glands increased in size and became more tender.

Examination showed a small, superficial and noninfiltrated ulcer the size of a split pea near the frenulum of the penis. The right inguinal glands were matted together, slightly fluctuating and slightly tender on pressure, and the underlying skin was slightly reddened. There were no lesions of the skin or mucous membrane. Dark-field examination and the Wassermann test gave negative results.

The patient had been treated with autogenous vaccine.

TABES DORSALIS: CHARCOT JOINT. Presented by DR. A. BENSON CANNON.

J. M., a woman, aged 54, a housewife, stated that the condition began with a swelling of the right leg from the knee to the ankle, two months prior to presentation. Local applications by the family physician reduced the swelling below the knee. The joint had become persistently larger, and was painless, and now she had practically no control of the leg when pressure was applied. She gave no history of primary or secondary syphilis.

Examination showed the right knee to be swollen and tender; fluid was present. The patient could not walk. The abdominal reflex was hyperactive. The Babinski sign was not present, and the triceps and biceps reflexes were normal. The Romberg's sign was present. The pupils were fixed and the size of a pinpoint. Dark-field examination of the fluid aspirated from the knee gave negative results.

The Wassermann test of the joint fluid was negative. The Wassermann and Kahn tests of the blood were likewise negative. The colloidal gold curve was 0,001,220,000. The spinal fluid test showed: cholesterol, 3 plus; with an alcohol antigen, 2 plus.

Roentgen examination of the joint showed changes of a Charcot joint.

Treatment consisted of the administration of arsphenamine and bismuth and intraspinal injections of Swift-Ellis serum.

PHENOLPHTHALEIN ERUPTION. Presented by DR. HERMANN FEIT.

The patient stated that she had had the condition for about a year; it consisted of a rash on the lips, nose, legs and arms that diminished but had never entirely disappeared; the rash was at its worst during the menstrual period. There were numerous hyperpigmented, round, sharply defined, slightly scaly macules ranging in size from that of a cent to that of a silver dollar. Although the patient said that she had not taken phenolphthalein, new lesions, which were much smaller and reddish brown, appeared after the ingestion of the drug. The lips swelled considerably when the rash appeared.

REPORT ON PREVIOUS CASES

A CASE FOR DIAGNOSIS. Presented by DR. MAX SCHEER.

This case was presented at the Section on Dermatology and Syphilology, New York Academy of Medicine, in February, 1931.

The papular lesions were on the lower part of the chest and abdomen. Some of the members made a positive diagnosis of molluscum contagiosum. A specimen taken for biopsy showed no evidences of this condition.

SECONDARY SYPHILIS. Presented by DR. LEO SPIEGEL.

This case was previously presented before the Section on Dermatology and Syphilology, New York Academy of Medicine, February, 1931.

The blood taken the next day still gave a negative reaction with the complement-fixation test. Some of this blood was given to Dr. Eller for Dr. Rhein, who reported that the Klein precipitation test gave a 4 plus reaction. Some of the same blood was also given to Dr. Louis Tulipan for Dr. Director, and he reported that the Rosenthal precipitation test gave a 4 plus reaction. Specimens of blood taken the following day gave a positive reaction with the Kahn and the complement-fixation tests. As is known, precipitation tests are often positive before complement-fixation tests.

MANHATTAN DERMATOLOGIC SOCIETY

M. B. PAROUNAGIAN, M.D., *Secretary*

March 10, 1931

JEROME KINGSBURY, M.D., *Chairman*

RADIODERMATITIS. Presented by DR. HOWARD FOX.

M. C., 35 years old, a saleswoman, consulted the Tricho Institute of New York City in 1929 for hypertrichosis beneath the chin. She stated that she was treated weekly for about twenty-five weeks. After approximately fifteen treatments had been given, the irradated area became red and inflamed. She was advised by the physicians at the institute to use warm applications and to continue treatment. Telangiectasia appeared about two years after the last treatment. The patient was told by the physician at the institute that this was due to "dissolving of moles," of which she had many on the face and other parts of the body. The condition, at the time of presentation, consisted of an area of profuse and disfiguring telangiectasia, mostly beneath the chin, measuring 6 by 3 inches (15.24 by 7.6 cm.). There was also a moderate amount of telangiectasia on the right cheek. One area, the size of a dime, was darker in color and tender. There were no ulcers or keratoses. There was no evidence of hypertrichosis.

DISCUSSION

DR. GEORGE M. MACKEE: About ten or twelve years ago there was a rather foolish controversy regarding the safety or comparative safety of unfiltered and filtered radiation. Well known roentgenologists took part in that controversy. It was maintained by many that sequelae seldom develop from a first-degree radiodermatitis with filtered radiation, whereas with unfiltered radiation they quite often do.

Geiser took advantage of the controvery, and established the Tricho Institute. At that time well informed persons stated that the danger was a trifle less with filtered radiation, but that the difference was not enough to warrant the use of filtered radiation for the treatment of hypertrichosis. It was predicted that the Tricho Institute would have no trouble for a while, but that in three, four or five years, cases of sequelae would begin to be noticed. It was estimated by a number of persons that in at least 10 per cent of the patients who had erythema following treatment with filtered roentgen rays atrophy and telangiectasia would eventually develop. This turned out to be true, and during the past two or three years cases of this kind have been rapidly increasing. In the next twenty years, keratoses or prickle cell epithelioma will develop in a certain percentage of these cases.

A CASE FOR DIAGNOSIS (TUBERCULID?). Presented by DR. J. J. ELLER.

A white married woman, aged 28, a stenographer, gave a history of having been in apparently good health except for the eruption on her fingers which had appeared every winter for eight years. She was first seen in January, 1930, at the New York Post-Graduate Clinic; at that time she presented several deep-seated vesicles and papules on the fingers. There was also a purplish edematous swelling of the fingers. All the lesions disappeared in a short time with local treatment.

She was seen again in December, 1930, at which time there were several pea-sized vesicles and papules on the fingers which were very painful to pressure. The lesions had begun as pinhead-sized papules, and had become enlarged to erythematous nodules the size of a pea which were firm and indurated, with swelling of the adjacent area. At this stage they were very sensitive and a hemorrhagic appearance soon developed in the surrounding edematous tissues. Then the central

portions of the lesions became slightly scaly and later developed into brownish crusts. Previous lesions of this type had undergone involution and left at their former sites slight whitish scars, several of which could be seen about the finger tips. Two weeks before presentation, a nodule appeared on the right heel.

The patient complained that the hands and feet were always cold in the winter months and that the skin of the legs then assumed a mottled, reticulated appearance. She complained of nausea and cramplike pains in the abdomen following cold drinks. On account of the history the diagnosis of pernio had been considered.

DISCUSSION

DR. ANDREW J. GILMOUR: The case appears to me as one of angiokeratoma. It has all the characteristics of that condition.

DR. GEORGE M. MACKEE: I am inclined to regard the case as one of pernio or an aberrant type of papulonecrotic tuberculid, or both. The lesions are neither angioma nor keratoma. About fifteen years ago Dr. Matsumoto wrote an able article on the subject of angiokeratoma. Perhaps he will favor us with an opinion as to the present case.

DR. J. J. ELLER: My diagnosis is pernio, because the lesions appeared only in the winter and there was a concomitant reticulated mottling on the extremities.

DR. MATSUMATO: I do not regard this case as one of angiokeratoma. I am inclined to think that the condition is pernio rather than papulonecrotic tuberculid.

DR. J. FRANK FRASER: The clinical appearance of some of the lesions in this case suggests papulonecrotic tuberculid. I feel that the diagnosis rests between that condition and pernio. Lesions similar to these do not occur in pernio. I favor the diagnosis of pernio.

DR. ANDREW J. GILMOUR: The case may be one of papulonecrotic tuberculid on a base of pernio.

DR. ISADORE ROSEN: I agree with those who consider the case one of pernio. We all know that the cutaneous manifestations in pernio depend on the amount of vascular disturbance produced. Frequently severe cases of pernio are complicated with superficial erosions and ulcerations.

A CASE FOR DIAGNOSIS (ERYTHEMA MULTIFORME?). Presented by DR. MAX SCHEER.

A. P., 23 years old, born in the United States, presented herself at the New York Post-Graduate Hospital on March 5, 1931, with an eruption which began about four years before presentation, on the back and on the neck. The eruption was described as urticarial lesions. There had been remissions and exacerbations. The attacks lasted anywhere from a few days to a few weeks and then disappeared for a number of weeks. The last attacks came on about a week before presentation. The patient often took phenolpthalein, the last dose having been taken one week before presentation. The eruption was extremely pruritic.

At the time of presentation the patient showed small, circinate, bluish-red, urticarial lesions on the forehead and scattered irregularly over the trunk. An irregular urticarial plaque was present on the left breast. There were papules and wheals on the sides of the neck and shoulders. The entire back was covered with scratched papules. There was considerable pigmentation. The eruption on the forehead and sides of the neck resembled erythema multiforme, whereas the eruption on the back looked like a typical mild form of Duhring's disease.

The patient was hypersensitive to iodine, which suggested Duhring's disease.

Patch tests with potassium iodide, potassium bromide, potassium chloride and petrolatum gave the following results: diffuse redness from potassium iodide; small vesicles from potassium bromide; an elevated, wheal-like erythematous lesion from potassium chloride, and slight redness from petrolatum.

DISCUSSION

DR. ANDREW J. GILMOUR: I think the condition is erythema multiforme.

DR. LUDWIG OULMANN: I think that this is a case of dermatitis herpetiformis. The patient states that the lesions disappear from one part of the body and appear on another. The form of pigmentation also is more in favor of dermatitis hepetiformis.

DR. PAUL E. BECHET: The condition seems to me to be typical of erythema multiforme, of the urticarial type. It lacks all of the pathognomonic symptoms of dermatitis herpetiformis, namely, vesicobullous lesions, grouping, scratch marks and pigmentation.

DR. J. J. ELLER: I think that this is a typical case of erythema multiforme.

DR. DAVID L. SATENSTEIN: I looked for the pigmentation, but could not find any; there was not much evidence of scratching and the patient did not complain of this symptom. My diagnosis is erythema multiforme. I do not think it is so important to give the condition a definite name as to establish the etiologic factors.

DR. GEORGE C. ANDREWS: I am inclined to agree with Dr. Satenstein. I think it is much more interesting, and helpful for the patient, to discuss the etiologic factors. The condition certainly is toxic or allergic. Focal infections and sensitization tests will have to be gone into very thoroughly.

DR. GEORGE M. MACKEE: It is a well known fact that it is possible for Duhring's disease to resemble erythema multiforme over a certain period of time. I have seen a number of cases that I diagnosed unhesitatingly as erythema multiforme, and after several months or a year or two I was compelled to change the diagnosis to dermatitis herpetiformis; but nevertheless, in all those cases the eruption was rather grouped and the pruritus was intense. The grouped vesicles may be overlooked because of their small size.

I think that the present case is one of erythema multiforme if we can eliminate drug eruption. Over a period of four years this patient has had an attack every few months. The eruption lasts only for a few days or a week or two; that is not the history of Duhring's disease. Attacks of dermatitis herpetiformis may be sudden, but the eruption does not disappear so quickly.

DR. HOWARD FOX: I agree with Dr. MacKee that this is more of the erythema multiforme type of eruption than that of Duhring's disease, though some cases of the two conditions look so much alike that they are almost impossible to differentiate.

In a patient of mine with recurring attacks for many years, the eruption looked like erythema multiforme at one time and like Duhring's disease at another time.

XERODERMA PIGMENTOSA IN TWO BROTHERS. Presented by DR. L. OULMANN.

In two boys, one 7 and the other 5 years old, the only children of a German father and an Irish mother, there developed at the age of about 1 year, some red scaly spots on the face, and numerous freckles, at first on the face and later on the neck and hands also.

Besides the freckles, there were at the time of presentation, scaly erythematous spots which showed some capillaries and from which under pressure the redness could not be expelled. While the younger child had not yet become sensitive to light, the older one had been blinking for a year and a half. The mother stated that the condition was progressive and was worse during the summer.

DISCUSSION

DR. DAVID L. SATENSTEIN: I accept Dr. Oulmann's diagnosis; the cases look like examples of very mild xeroderma pigmentosum.

DR. GEORGE C. ANDREWS: I agree with the diagnosis of xeroderma pigmentosum, and recall two very interesting cases that Dr. Cannon presented at the Academy of Medicine; the patients were a brother and sister of about the same

age in whom the condition was in a little more advanced stage. The two patients presented tonight seem to show typical symptoms of an early stage, consisting mostly of photophobia and lentigenes.

DR. GEORGE M. MACKEE: There is no question but that the present cases show a sensitivity to light in two members of the same family. The freckles seem to be of the permanent type rather than temporary. The skin is excessively dry. I am inclined to think the cases represent mild examples of the early stages of xeroderma pigmentosum.

DR. LUDWIG OULMANN: My diagnosis is xeroderma pigmentosum of a mild type. The appearance of the condition in two brothers both in the first year of life, the slow advance of the lentigenes and the photophobia speak for this diagnosis.

DR. J. J. ELLER: A case of sensitivity to light is all I can make out of it.

CHANCRE OF PENIS IN A BOY OF SIX. Presented by DR. J. KINGSBURY.

A white boy, aged 6 years and 1 month, born in Porto Rico, had an indurated lesion on the glans penis which was said to have been present for about six weeks before presentation. There was a generalized papulosquamous eruption of two week's duration. The superficial glands were all palpable. The Wassermann reaction was 4 plus. There was a history that the boy had slept with a female relative at the time when, from the appearance of the eruption, it seemed probable that the infection had been acquired.

The young woman believed to have been the source of the infection was known to have had active syphilitic lesions of the vulva at this time.

DISCUSSION

DR. ISADORE ROSEN: I should like to ask Dr. Kingsbury how he is going to treat this patient.

DR. JEROME KINGSBURY: I shall be glad to have your opinion.

DR. ISADORE ROSEN: In view of the fact that the boy has had these marked secondary skin manifestations as evidence of an infection that has been present some three or four months, it is imperative to handle him very carefully as to specific remedies. I suggest that a good plan to follow in this instance would be the administration of at least one course of bismuth or mercury intramuscularly before attempting intravenous medication.

DR. HOWARD FOX: Dr. Rosen did not explain why one should use exceptional care in treating a child like this. Why should not a regular course of treatment be given, in doses, of course, proportionate to the patient's age?

DR. M. B. PAROUNAGIAN: The age of the patient makes the present case very interesting. The youngest patients I had, who had acquired syphilis, were a 14 months old baby and her sister 4 years old, both of whom were infected by an uncle. Both of them had genital chancres and roseola, and the Wassermann reaction was 4 plus. There was another case, which Dr. Herman Goodman and I reported, of a boy 5½ years of age, who had chancre at the sulcus. This report was published in the *Archives of Pediatrics* (**39**:651 [Oct.] 1922).

Regarding Dr. Rosen's suggestion as to therapy, I think it is rather extreme. However, in cases like the one presented by Dr. Kingsbury, I think it is a safe plan to give one or two injections of bismuth or mercury prior to arsenotherapy in order to prevent a Herxheimer's reaction.

DR. JEROME KINGSBURY: I agree with Dr. Rosen. I think that this boy would do much better with mercury than with neoarsphenamine.

MICROSPORID FOLLOWING ROENTGEN RAY EPILATION OF SCALP. Presented by DR. HOWARD FOX.

H. B., a girl, 7 years old, had received an epilating dose of roentgen rays on the scalp for tinea capitis three weeks prior to presentation. Four weeks before this the patient had noticed a single scaly bald patch on the occipital region the

size of a quarter. Gradually a few pimples appeared elsewhere on the scalp, but they did not become purulent until after the roentgen treatment. After treatment a profuse pustular eruption involved the entire scalp, and five days before presentation a generalized profuse eruption of the trunk appeared. This eruption was mainly of the papular type, a few lesions being vesiculopapular. Some were discrete and some coalescent. Subjective symptoms on the trunk were slight; the eruption on the scalp, however, caused considerable soreness.

Microscopic examination of the lesions on the scalp showed the presence of microsporons. Subsequent to presentation it was ascertained that a culture had been made which had yielded Microsporon lanosum.

DISCUSSION

DR. MARION B. SULZBERGER: I think this case is very interesting. The first question is whether the tinea infection of the scalp is due to a microsporon or not. Microsporon infections seldom cause dermatophytids. The type of lesion on the scalp, with pus formation, infiltration and involvement of the glands of the neck, speaks strongly for a type of fungus that causes more reaction on the part of the host than microsporon usually does. The only way to differentiate is by culture and animal inoculation.

Another point is that the dissemination appeared after roentgen treatment. This has been observed frequently, and the best explanation is that the inflammation of the focus that follows treatment with roentgen rays causes a dissemination of fungi. This process was studied experimentally, and I have reported on it in an article, entitled, "The Pathogenesis of Trichophytids," which appeared in the ARCHIVES OF DERMATOLOGY AND SYPHILOLOGY (**18**:891 [Dec.] 1928).

DR. J. J. ELLER: I agree that this condition is dermatophytid, but I think that the marked inflammatory process was in all probability due to local applications.

DR. ISADORE ROSEN: Four or five months ago at Mount Sinai Hospital I saw a case of tinea capitis (kerion Celsi) very much like this one, in which there was epilation with roentgen rays. About ten days following the irradiation generalized erythematous eruption with vesiculation and fever developed, and the child had to be put to bed for a week. At one time she seemed very ill. To my surprise, after three or four weeks the entire condition abated and an uneventful recovery followed.

DR. GEORGE M. MACKEE: I agree with the diagnosis of microsporid or dermatophytid, and the eruption is the most profuse of its kind that I have ever seen. I do not think that this is an uncomplicated case. The patient is allergic to the fungus; therefore, the diagnosis of dermatophytid is correct. But I think that the patient also is susceptible to staphylococci or allergic to their products, and that he has a secondary type of eczema often designated as infectious eczematoid dermatitis.

DR. HOWARD FOX: I think that everyone who has used roentgen rays for epilation in many cases of tinea capitis has seen a papulopustular eruption develop. Dr. Sulzberger rightly said that certain types of trichophyton with small spores may be difficult to distinguish from microsporon. Cultures are being made at the clinic which will settle this question.

VON RECKLINGHAUSEN'S DISEASE. Presented by DR. GEORGE C. ANDREWS.

A. M., a man, 24 years old, had had since birth an extensive verrucose nevus on the left side of the chest and left arm. In addition to this nevus the patient presented subcutaneous, firm, lobulated, exceedingly tender tumors, one on the left pectoral region and one on the inner part of the right arm, both characteristic of neurofibroma. On the upper part of the right arm there was a large light brown, mottled patch (café au lait patch). Roentgenographic examination showed fibrocystic changes in several of the bones. There was deviation of the tongue to the left, atrophy of the left half of the tongue and a sparsity of hair on the left side of the body, particularly of the pubic hair.

DISCUSSION

DR. DAVID L. SATENSTEIN: I saw the nevus and felt the elevation, but I could not see anything to suggest von Recklinghausen's disease. To me it seems that the patient presents an extensive congenital malformation; I should like to see a great deal more evidence before accepting the presenter's diagnosis.

DR. MARION B. SULZBERGER: I saw a case very similar to this which was reported by Peck and Kartagener. There were hyperpigmentation and atrophy of the skin, bones and muscles.

DR. LUDWIG OULMANN: While I do not regard the tumors under the skin of the upper part of the right arm as belonging to the von Recklinghausen complex, I consider the condition otherwise as due to von Recklinghausen's disease plus the existing nevus.

DR. J. J. ELLER: It is true that the nevoid conditions found in the present case may be found in a patient with von Recklinghausen's disease. This patient did not have the other lesions characteristic of von Recklinghausen's disease and there is no significant family history, which these patients usually have. I should not consider this a case of von Recklinghausen's disease.

DR. HOWARD FOX: The condition is a beautiful case of linear nevus. The evidence as stated by Dr. Eller is rather inconclusive regarding von Recklinghausen's disease.

DR. GEORGE M. MACKEE: The case presents an interesting congenital defect, consisting of an extensive pigmented nevus on the right shoulder and right arm. I doubt that the pigmentary nevus can be classified as a café au lait spot. The two tumors are hard and subcutaneous and do not suggest von Recklinghausen's disease.

DR. GEORGE C. ANDREWS: When I first saw the patient the condition impressed me as being simply a pigmented nevus. After further study I found the subcutaneous hard tumors, which, as has been said, are not the usual skin tumors found in von Recklinghausen's disease. They are subcutaneous, but they are probably neurofibromas. They are lobulated and unattached to the surrounding tissue, and exceedingly tender when squeezed. These neurofibromas made me think of the possibility of multiple neurofibromatosus. While I was looking for café au lait spots, the question came up whether the mottled light brown pigmentation on the upper part of the right arm might not be a café au lait spot. Usually one considers the café au lait spot as a rather small light brown pigmented area; but because the tumor is large and mottled in this case seems no reason why it should not be considered such a spot. Moreover, we found fibrocystic bone changes and neurologic changes that frequently accompany von Recklinghausen's disease, and for these reasons I feel that this is the diagnosis in this case.

A CASE FOR DIAGNOSIS (LUPUS ERYTHEMATOSUS?). Presented by DR. MAX SCHEER.

D. S., a man, 43 years old, a carpenter, born in Poland, married, had had an eruption on the face and arms for about ten months.

Five and a half months before presentation he went to Dr. Astrachan's office and presented the following condition: well defined, erythematous patches, with marked infiltration and scaling on the bridge of the nose, cheeks and lower lip. On the backs of the hands and sides of the neck were scaly thickened patches, in places confluent. The lesions on the face looked like lupus erythematosus, and therefore the patient began to receive weekly injections of gold sodium thiosulphate. He received altogether 500 mg. (twelve injections). The lesions on the face nearly cleared up, but the lesions on the neck and arms did not change.

At the time of presentation the patient had patches of erythematous, slightly scaly and infiltrated lesions on the face with areas of normal skin between. The skin over the ears was thickened, reddened and slightly scaly. On both sides of the neck were well defined, thickened, lichenified patches with some scaling.

Similar pea-sized lesions were on the back of the neck. On the backs of the hands, fingers and forearms were reddened, scaly, thickened patches, the borders of which tended to be sharply outlined. In places the patches were confluent. Some of them presented vesiculation and fissuring, while some were dry and scaly. In the mouth were patches of grayish-white lesions with marked reticulation. There was a macular pigmentation of one month's duration on the forehead, neck, upper part of the thorax and abdomen. The pigmented macules were confluent in places.

The Wassermann test and urinalysis gave negative results. There was no history of taking arsenic. A biopsy performed by Dr. Satenstein showed chronic dermatitis.

DISCUSSION

Dr. Isadore Rosen: I do not know what condition the patient had originally, but from the clinical picture the eruption now looks very much like an eczematoid dermatitis. The profuse edema, eczematous patches and localization all tend to confirm that diagnosis. In my opinion the condition was caused by the injections of gold sodium thiosulphate.

Dr. Paul Bechet: The patient apparently has an eczematoid dermatitis scattered over the face, neck and ears. It might be possible that some of the lesions on the face will eventually turn out to be lupus erythematosus, but I am at present strongly inclined to doubt such a possibility. The pigmentation is probably due to the administration of the gold compound.

Dr. David L. Satenstein: There is a rather extensive edema which is fairly well marked in the upper portion of the cutis. There was a definite cellular reaction near the vessels but there was no degeneration, nor was there any atrophy. I believe the possibility of lupus erythematosus can be eliminated. My diagnosis is chronic dermatitis of unknown origin.

Dr. G. Astrachan: I saw this patient five and a half months ago, at which time I gained the impression that he had lupus erythematosus on his face. After twelve injections of gold sodium thiosulphate (500 mg. altogether) the lesions nearly cleared up. The patient came to me again two weeks before presentation with the present eruption, namely, dermatitis and pigmentation over the face, hands and trunk.

A Case for Diagnosis (Dermatitis Venenatum?). Presented by Dr. Andrew J. Gilmour.

G. M., a man, 36 years old, married, four months before presentation had a micaceous scale on the dorsum of the glans penis which, without symptoms except for a slight itching, gradually spread. Physical examination showed a rounded patch a little less than 1 inch (2.5 cm.) in diameter. This extended back from the meatus over the dorsum of the penis, the opposite side of the circle reaching the sulcus. The plaque was very slightly raised and presented a suspicion of segments of small circles.

The patch was slightly lichenified as if made up of very small closely crowded papules. In the daylight two micaceous, gray scales were seen.

DISCUSSION

Dr. David L. Satenstein: I found the lesion atrophic, and therefore I suggest the possibility of lupus erythematosus.

Dr. Isadore Rosen: I think this patient has some form of chronic dermatitis of the penis. We occasionally see patients with penile lesions that cannot be explained, but find on interrogation that the wives of such patients use very strong vaginal douches, which act as an irritant to the penile tissues. I should suggest that Dr. Gilmour request abstinence for a few weeks and note the effect.

Dr. Howard Fox: I agree with Dr. Rosen that we cannot make a more accurate diagnosis than chronic dermatitis. We sometimes call patches like this psoriasis or seborrheic eczema merely for the sake of a name.

ST. LOUIS DERMATOLOGICAL SOCIETY

MARTIN F. ENGMAN, JR., M.D., *Secretary*

Regular Meeting, March 11, 1931

RICHARD S. WEISS, M. D., *Presiding*

LUPUS VULGARIS. Presented by DR. A. H. CONRAD.

H. W., a white woman, aged 57, admitted to the Washington University Dispensary, had an eruption on the face and neck which has been present over a period of forty-eight years. She was treated with x-rays about six years ago and had injections of tuberculin about five years ago; she was also treated with the Kromayer lamp.

She had an erythematous patch on the entire right side of the face and neck running under the chin to the angle of the jaw on the left side of the neck. The right side of the face was involved up to the eye; the lesion extended upward to the temple, involving the lower part of the ear; it extended downward to the clavicle. There are a few apple jelly-like nodules on the border at the right side of the neck. The entire lesion was an angry red, and some areas were covered with fine scales and some very small nodular lesions. There were several areas in which the skin was broken and which had the appearance of an epitheliomatous degeneration. Scattered throughout the right side of the neck were several areas of telangiectasia possibly due to the roentgen treatment.

This case is presented merely on account of the great involvement and also to show some of the untoward results of roentgen treatment. The foregoing history was taken from the clinical record of three years ago; no history or description as to the present condition is given as the patient just came in about half an hour ago, and refuses to submit to further examination. However, the lesion has spread from 1 to 2 inches (2.5 to 5 cm.) in practically all directions since the description given was written.

DISCUSSION

DR. M. F. ENGMAN, JR.: Some months ago we presented before this society a patient with lupus vulgaris of the face who was treated by a salt-free diet with a high vitamin A content. She did well while in the hospital. We have seen her from time to time and she is progressing slowly, but is very definitely improved.

ERYTHEMA MULTIFORME PERSTANS. Presented by DR. HENRY C. SHAW.

P. S., a white man, aged 39, was admitted to the Barnard Free Skin and Cancer Hospital. The family history was irrelevant, as was the past history. The patient stated that about December 1, after an attack of diarrhea, a red spot appeared on the cheeks. New lesions had continued to appear since this time, being limited to the face. There was no history of drug ingestion. Itching was not a feature of this eruption.

Examination showed that the sides of the face, cheeks and forehead were more or less thickly covered with scattered wheal-like plaques varying in size from 1 to 3 or 4 cm. in diameter. Some were circinate, showing a distinct tendency toward clearing in the center. There were no lesions except on the face.

DISCUSSION

DR. A. H. CONRAD: It looks like erythema multiforme perstans. Some of these lesions have a depression in the center and raised borders. Had they been more flat I would have thought of lupus erythematosus.

DR. M. F. ENGMAN, JR.: We recently had a similar case in the office. The lesions were bilaterally symmetrical on each temple. Dr. Mook saw the patient with me and agreed that the condition was erythema multiforme perstans. The

patient was treated for a relatively short time with hydrochloric acid after meals. He is now practically well. It is interesting that the patient presented here noticed that the lesions occurred first when he was suffering from an attack of diarrhea.

DR. J. GRINDON: I thought that the case was lupus erythematosus.

DR. R. S. WEISS: Some years ago, I presented a similar case, but much more extensive, at one of our annual meetings. The man's trunk and limbs were covered with the eruption. On large doses of sauerkraut juice the eruption completely disappeared. A few months later it again appeared and the sauerkraut treatment was ineffective. I then sent him to a gastro-enterologist who found evidence of colonic stasis and infection. The patient was treated for these conditions and promptly recovered and remained well.

SPOROTRICHOSIS? TULAREMIA? Presented by DR. HENRY C. SHAW.

M. S., a white woman, aged 38, was admitted to the Barnard Free Skin and Cancer Hospital. She had five children aged 1½ to 12 years, living and in good health. Her health has always been good.

Her present illness began in December, 1930, about three weeks after dressing some wild cotton-tail rabbits, when she developed a sore on the right index finger. This was not painful, but after about three days it was opened by her physician and a small amount of pus was drained. Following this, in the course of the succeeding three weeks, there was a lymphangitis on the right forearm and arm, with the development of subcutaneous nodules linearly distributed. Some of these nodules coalesced to form large subcutaneous masses, which became fluctuant; other nodules, especially on the dorsum of the hand, ruptured spontaneously and began to retrogress. About January 1, she noticed a lump in the right axilla. This gradually enlarged and in the next five weeks became the size of a large lemon. One month before this meeting, it was opened by her physician.

At no time during the course of this illness had she any fever, malaise or loss of weight or strength. She stated that she had felt better during the past winter than ever before in her life, and she had been able to attend to her usual duties on the farm.

General examination revealed a well developed but only fairly well nourished white woman of 38, who appeared in no acute pain or discomfort. Physical examination yielded essentially normal results.

The eruption was located on the right index finger, right forearm, arm and axilla. On the right index finger, on the external surface of the first joint, was a healing induration. Running up the arm on the radial side of the dorsum there was a lymphangitis on which at intervals of about 1 inch there were several granulomatous masses. Some of these had coalesced to form large subcutaneous abscesses. These were not inflamed. There was a healing surgical scar in the right axilla.

A roentgenogram of the chest was normal. The urine contained a faint trace of albumin, but no red blood cells or casts. Examination of the blood showed: hemoglobin, 84 per cent; red blood cells, 4,650,000; white blood cells, 10,500; smear, normal. Agglutinations with Bacterium tularense were positive as follows: (1) Washington University, 1:160 (as high as the test was carried); (2) City of St. Louis Bacteriology Laboratory, 1:2,560; (3) United States Public Health Service Hygienic Laboratory, not report as yet. Direct smears of stained and unstained pus showed spores identical with those of Lawless (Diagnosis of Sporotrichosis, ARCH. DERMAT. & SYPH. **22**:381 [Sept.] 1930). Cultures have shown no growth. Rabbits and white rats inoculated one week before this meeting have remained healthy.

DISCUSSION

DR. J. GRINDON: The condition looks like sporotrichosis.

DR. R. S. WEISS: This is a most unusual and curious case. The patient presents a clinical picture which is absolutely characteristic of sporotrichosis and yet her blood agglutinates Bacterium tularense.

Examination of pus from lesions revealed spores microscopically indistinguishable from the spores of Sporothrix. The incubation period of the primary lesion was three weeks, which was too long for tularemia. The patient has never had any fever, prostration or malaise, facts which are irreconcilable with a diagnosis of tularemia. I am unable to explain the positive agglutination test unless certain higher fungi, such as Sporothrix, may agglutinate Bacterium tularense. If so, it is a significant and unusual fact that should be recorded. We were unable to obtain any history of a previous illness resembling tularemia. If it were tularemia, all the rats and rabbits which were inoculated should now be dead, and they are not even sick.

There is, of course, a well known form of tularemia which looks like sporotrichosis, but it is accompanied with the usual prostration symptoms of tularemia.

BROOKLYN DERMATOLOGICAL SOCIETY

A. M. PERSKY, M.D., *Secretary*

March 16, 1931

ABRAHAM WALZER, M.D., *President, Presiding*

DARIER'S DISEASE. Presented by DR. A. WALZER.

L. T., a woman, aged 39, single, had had the condition since she was 16 years of age. It commenced on the face and spread gradually over the entire body. She received for treatment external applications, injections, radium and roentgen rays, etc. While she had temporarily improved, the condition gradually became worse.

At presentation, the entire body, face, scalp and extremities were involved. The primary lesion was a follicular papule, pinhead in size, irregular in shape and of a pale red or normal skin color. It gradually increased to the size of a millet seed or a little larger, and was covered with an adherent, horny crust, which on removal left a funnel-shaped, red, moist depression. Some of the primary lesions formed away from the follicle and gave the impression of a lichen papule. In the groin, the axilla and pubic regions were large, irregular, greasy, crusted, dark red patches in which the elementary lesions were noted, as well as pea to cherry-sized, globular or crater-shaped, vegetating lesions. In the gluteal fold, extending for about 2 inches (5 cm.) on either side and protruding for about 2 inches, was a large fungoid tumor, consisting of many globular fungoid masses of various sizes, varying in color from dark to violet, moist and with a strong and offensive odor. The nails were striated, brittle and improperly formed. On the neck, chin, forehead and upper part of the chest were large areas of telangiectasia and atrophy, the result of previous radium therapy. The mouth showed no lesions.

DISCUSSION

DR. A. WALZER: This patient has the three types of lesions described in Darier's disease. The most common lesion is the follicular papule with the central thick scab, which on removal shows a funnel-shaped depression. Second, she also has lesions that occur between the follicles and are lichenoid, and third, she had the tumor or fungoid lesions. These fungoid lesions may be the continuation of either of the first two types of lesions, or they may develop as such lesions from the start. Histologically, the structure is the same in all three types. An interesting feature is that they do not become cancerous.

DERMATITIS GANGRENOSA. Presented by DR. A. WALZER.

A. S., a man, aged 47, married, a peddler, had never been seriously ill, but gave a history of very frequent attacks of boils which appeared at various intervals.

At presentation, he showed lesions on the lower left side of the chest, pubic region, both thighs and dorsum of the left hand. The process apparently began as a deep-seated infection the size of a pea, which gradually extended in all directions, reaching from the size of a hazelnut (on the pubis) to that of an area larger than a silver dollar (on the right thigh). The process eventually resulted in a black, necrotic mass, with a sharp red border which sloughed out and left a scar.

DISCUSSION

DR. J. SKEER: I have seen a few carbuncles, and there was always a necrotic center, with a well defined, deeply infiltrated mass, the induration being much larger than the necrotic area itself. I suggest the diagnosis of mycotic infection.

DR. M. J. CANTOR: It seems to me that a carbuncle of that size would be very painful and would show changes, such as redness, heat and edema, which this lesion does not show.

DR. A. WALZER: While this condition is unquestionably an infection, it is of the type not usually seen, and is not of the carbuncle type, neither in its method of onset nor in its progress. There are no constitutional symptoms. The name dermatitis gangrenosa is more descriptive of the condition than anything else.

LUPUS ERYTHEMATOSUS AND EPITHELIOMA? Presented by DR. J. SKEER.

M. M., a woman, aged 33, first noticed several patches on the right cheek when she was 16 years old. She picked the lesions, especially the area on the right side of the nose. These areas spread in spite of treatment, which was varied. Salves, actual cautery, roentgen therapy, refrigeration, the Hollander treatment, ultraviolet rays and electrodesiccation were of no avail. Even change of climate (from New York to California) did not help. There was no history of tuberculosis in the family.

On the face extending on either side of the nose and covering the malar region, was a large butterfly lesion, sharply marginated, consisting of crusting and hyperkeratotic plugs. The center of the lesion, especially over the cheek bones, was atrophic and had extensive telangiectasia. The nose had ulcerations, which were covered with dirty yellow, hyperkeratotic crusts. The ulceration on the right side of the nose and on a line with the lower lid of the right eye was also covered with a thick crust. Removal of this crust left a deep, oval-shaped ulcer, the margin of which was well defined and the floor of which was necrotic. The size was 1.5 by 2 cm. The patient had had a similar growth which had been removed with radium several years previously.

The Wassermann test of the blood and examinations of the urine gave negative results. Roentgen examination of the chest showed it to be normal. The patient had been receiving a gold compound and sodium thiosulphate therapy.

DISCUSSION

DR. M. A. LYONS: The presence of an epithelioma within the borders of a patch of lupus erythematosus is unusual. In this case radium has been applied, and the ulcerated lesion is probably of the prickle cell type. The spontaneous appearance of skin cancer is more often seen in lupus vulgaris lesions, but even then it is very rare. The history as to the application of irritants is important.

DR. J. C. GRAHAM: It seems to me that the epithelioma is the important part to be treated. As to the kind of treatment, I feel that this should be surgical, preferably surgical diathermy. If the bone is involved, it should also be removed. As the patient has a pathologic condition of the glands, they should either be irradiated thoroughly or removed by block dissection.

Dr. J. Skeer: This condition began with three small patches on the right side of the face and on the nose where there is now a malignant condition. The patient picked the lesion on the nose, and the growth formed. Radium therapy resulted in a complete removal of the growth. It was healed until the recurrence about a year prior to presentation. She has had to date three injections of a gold compound and sodium thiosulphate, beginning with 10 mg., and the last injection being 20 mg. I believe in giving small doses weekly instead of comparatively large doses of from 50 to 100 mg. I intend to give heavy filtered doses of roentgen rays to either side of the neck and then to remove the growth with surgical diathermy.

Psoriasis in a Negro. Presented by Dr. J. C. Graham.

V. B., a boy, aged 6 years, was the son of a full-blooded Negro mother and of a father who was not seen but who was said to have been born in Trinidad. Whether there was any mixture of Caucasian blood was not known. The child was typically negroid in color of skin and shape of face. He had had scarlet fever, measles and whooping cough in infancy. The eruption had been present for one year. It cleared up during the summer, only to recur again in the fall.

He presented numerous, scaly, sharply marginated lesions, located principally on the extensor surfaces and on the scalp. On removing the scales, bleeding points were present. There were no evidences of vesiculation or crust formation. Microscopic examination for tinea was negative. Biopsy had not been performed.

CHICAGO DERMATOLOGICAL SOCIETY

Regular Meeting, March 18, 1931

H. E. Michelson, M.D., *President, Presiding*

A Case for Diagnosis. Presented by Dr. F. E. Senear and Dr. M. S. Wien.

V. N., a girl, aged 6, was in perfect health until the age of 3 years, when an eruption developed on the scalp which gradually extended down the face and neck until it covered the entire body. The earliest lesion was a red "spot" that soon became a blister, broke down, became purulent and crusted. The crusts fell off in from two to three weeks, leaving a pitted scar. There was marked pruritus during the first year of the eruption. There had been irregular attacks of fever, and the patient had a temperature of 101.4 F. when first seen. There was no history of tuberculosis in the family, and the child's general history was otherwise unimportant.

When first seen on Feb. 12, 1931, the child appeared acutely ill and presented pustules, crusted lesions and residual pitted scars over the entire body, including the scalp; flaccid vesicles, some ruptured, over the dorsa of the hands, and paronychia of the fingers. The left eye was swollen shut because of a crusted lesion on the lower lid. The general examination gave negative results, except for a palpable spleen and enlarged tonsils.

The urine was negative for hematoporphyrin, and the Pirquet and Mantoux tests gave negative results, the latter with 0.1 and 1 mg. of old tuberculin. Examination of the blood showed: hemoglobin, 65 per cent; red cells, 3,450,000; white cells, 8,150; lymphocytes, 46 per cent; large mononuclears, 8 per cent; polymorphonuclears, 46 per cent.

Although pain and swelling had been present in the right forearm and elbow, roentgenograms revealed no infection of the bone. On March 8, the middle finger of the left hand was incised, and the nail was removed. Roentgenograms of the

chest showed the average amount of lung markings. Smears from the pustules revealed Staphylococcus aureus and a hemolytic streptococcus on culture. Blood cultures were negative.

While the patient was in the hospital, the general condition improved greatly on feedings high in vitamins A, B, C and D. She had had an irregular temperature, which ranged from 99 to 105 F. She had just recovered from mild localized pneumonia.

At the time of presentation, there was noted on the skin two superficial ulcers the size of a quarter over the right elbow which had begun as flaccid bullae one week previously, had ruptured and had become secondarily infected. There was a remnant of a flaccid bulla over the dorsum of the right hand. The dorsum of the left hand was edematous and had residual crusting from old infected lesions. There were some crusted lesions the size of a split pea on the left side of the face, the left forearm and the right hand, and a spindle-shaped swelling of the fingers. There was scattered residual pigmentation of the skin of the trunk and extremities with split pea-sized, punched-out scarring on the face, trunk and extremities, with a linear scar over the vertex in the scalp. There was no adenopathy, and at no time had there been any lymphangitis.

A marked ascites was present, which had become progressively worse since the patient's admission to the Illinois Research and Educational Hospital.

DISCUSSION

DR. J. H. MITCHELL: The case seems to be the result of many complications. I was interested in the ulcers on the right elbow as being possibly chronic pyoderma of the streptococcus type, in which I have been interested for some time.

DR. PAUL A. O'LEARY: In the differential diagnostic problem I considered the tuberculids, ecthyma and dermatitis gangrenosa infantum, in that order. The diffuse, punctate scarring is highly suggestive of a papulonecrotic tuberculid. I found it hard to explain the gangrenous ulcer on the right elbow as a tuberculous lesion, and I prefer to conceive of it as a secondary ecthymatous process in a debilitated child.

DR. DAVID LIEBERTHAL: I agree with Dr. Mitchell and also with Dr. O'Leary. I was guided chiefly by the scar formation, which resembles that after vaccination, and I think that it can be interpreted as folliclis. The deep ulcerations are, unquestionably, caused by an additional pyogenic infection.

DR. CHESTER A. DOTY: I was impressed with this case as being like the one presented by Dr. Duemling at Dr. Wile's clinic as dermatitis nodularis necrotica. That patient is now in Detroit under observation.

The scarring in the case presented is somewhat like that in the one mentioned. In our case the lesion started as a small bleb that gradually spread. If the serum from this bleb were injected under fresh skin, a new lesion would start.

In our case we found both staphylococci and streptococci. These organisms were also found in the tonsils. After removal of the tonsils, our case gradually cleared up temporarily.

I believe that I see a similarity between the two cases: (1) in the appearance of the open lesions and (2) in the chronicity of the case. I wonder whether there is an infection of the tonsils in the case presented.

DR. F. E. SENEAR: I am quite in accord with the ideas expressed, and I wish to emphasize the bullous onset of most of the lesions. The patient was sent to the hospital with a diagnosis of epidermolysis bullosa. The two ulcers now present on the elbow were not present when she entered the hospital, but suddenly, over night, two large bullae developed which went on to the formation of the superficial ulcers. We thought that the condition might be a tuberculid or a chronic pyogenic infection, or possibly a combination of the two. The child is on the pediatric service, and they have been unable to determine any origin for the fluid in the abdomen. We ordered a specimen for biopsy, but that day pneumonia developed so that there has been no opportunity to secure one as yet.

FAVUS OF AMERICAN ORIGIN. Presented by DR. J. H. MITCHELL and DR. RUBEN NOMLAND.

A woman, aged 24, born in Wisconsin of Polish parents, had had a disease of the scalp since early childhood. Her mother had a similar condition. Her children, a boy, aged 3, and a girl, aged 4½, had had the disease for only a few months.

In 1927, roentgen epilation was done on the mother, and while it was fairly satisfactory, the disease recurred.

The mother presented an irregular, patchy, scarring alopecia of the scalp, which was most marked at the vertex. It was estimated that about one third of the scalp was involved. In addition, there was an active area 5 cm. in diameter on the vertex which, when she was first seen, was covered by a thick yellow crust.

One of the children presented an area 1 cm. in diameter, and the other two areas of about the same size. These areas showed a small yellow crust at the bases of the hairs, but as yet no alopecia.

Potassium hydroxide preparations of the mother's hair showed the segmented, branched mycelium in the hair and mycelia and spores in the crusts. By this and cultures (Dr. Mitchell), the organism was identified as Achorion schönleinii. Similar organisms were demonstrated in the hair of both of the children, but no cultures were made.

A girl, aged 14, was born in Illinois of Dutch parents. The grandmother was supposed to have had a similar disorder that lasted into adult life, but which healed under home remedies. The school nurse stated that none of the patient's five siblings had any disorder of the scalp.

The patient presented an irregular area of scaling, erythema and scarring alopecia over the vertex. There were no "scutula."

Sodium hydroxide (10 per cent) preparations of the hairs and scales revealed mycelia in the hairs and mycelia and spores in the crust. Cultures (Dr. Mitchell) confirmed the diagnosis of favus (Achorion schönleinii).

The mother, also American born, had a scarring alopecia, but showed no activity of the process.

DISCUSSION

DR. M. H. EBERT: I wish to congratulate the presenters on two points: (1) the beautiful photomicographs that Dr. Mitchell made, which showed the organisms in the hairs, and (2) the treatment with iodide by mouth and intravenously. I think that anyone who contributes anything to the treatment for favus deserves congratulation.

DR. J. H. MITCHELL: The cases were interesting to me because of the fact that the patients are all native born. There are not many cases reported in the literature in native-born Americans. I wish to call your attention to the fracture of the favus hairs with protrusion of the mycelia, which is well shown in the photomicrographs.

In the treatment, as the mother had been treated by epilation with the roentgen rays, we doubted the advisability of repeating that procedure. The use of sodium iodide internally and intravenously is of great value. Cultures of the hair of the mother and her two children and of that of the older girl and her mother were all positive.

LUPUS PERNIO? LIVEDO RETICULARIS? Presented by DR. E. A. OLIVER.

Miss P., an Italian girl, aged 19, who was overweight, had had a circulatory disturbance of all extremities, which gradually grew worse, since childhood. It was distinctly worse in winter than in summer, and was aggravated on exposure to cold.

The patient weighed 206 pounds (93.4 Kg.) and presented a vascular disturbance of the arms and legs. There was a reticulated, purplish, mottled appearance extending well up on the thighs and the arms. In some places there was a rather marked induration of the skin, but no true nodule formation. On the arms there were a few small scars suggestive of former necrotic lesions. The basal metabolic rate was + 2.

DISCUSSION

DR. M. H. EBERT: I think that the fundamental pathologic physiology in this type of case is circulatory, and I have never yet seen an adequate explanation for the interference with the return circulation from the capillaries of the skin that is always present. Probably in this case, as in many others of this type, there is an endocrine basis for the disturbance. Before any histologic changes can be found in vessels, chilblain circulation is established. The reteform distribution on the thighs and buttocks is due to the fact that in these areas the circulation is slowest and the blood is relatively stagnant. This pattern is often a basis for further pathologic changes in the vessels. These changes may be tuberculous, as in livedo reticularis, or syphilitic, as in livedo racemosa, which was described by Ehrmann.

DR. PAUL A. O'LEARY: One point I wish to emphasize is the presence of vasospasm in this type of vascular disturbance. In two patients I have observed, in whom a sympathetic ganglionectomy was performed, the marked acrocyanosis with cold, wet hands and feet disappeared following the operation. This tends to substantiate Dr. Ebert's remarks. The patient under discussion probably has a polyglandular syndrome, in addition to the vascular disease, and no doubt the former condition, associated with a marked gain in weight, has aggravated the vascular disturbance. I think that various noxae contribute to the development of livedo reticularis, as Dr. Becker pointed out several years ago, and I also believe that tuberculosis and syphilis play a minor part in the etiology of the disease.

DR. J. H. MITCHELL: I had an opportunity to present this patient in my clinic, and while there is some reteform spasm, the fact that the venous circulation disappears so quickly on elevating the arm shows that it is not a severe spasm. She has had two children, and the condition is said to have appeared after the delivery of the first child. The point made by Dr. Michelson when he examined the patient is interesting; namely, that this type of case may finally prove to be a forerunner of poilkiloderma.

DR. S. W. BECKER: I think that these cases are merely a matter of degree. If this girl were seen in Zurich or Germany, she would not be considered abnormal. Here we see these cases so infrequently that they are looked on as pathologic. The fact that the venous blood disappears so slowly and comes back bright red instead of livid shows that there is no interference with the venous return, and the diagnosis is livedo reticularis. I think that it is due to some neurocirculatory disturbance.

DR. H. E. MICHELSON: In livedo, have any roentgenographic studies been made after injections into the vessels.

DR. DAVID LIEBERTHAL: Has an examination of the cardiovascular system been made?

DR. J. H. MITCHELL: In the clinic, the patient's heart and pulse were examined, and nothing abnormal was found.

DR. E. A. OLIVER: When this girl was first seen about ten days ago, the picture was more that of pernio than of livedo reticularis. The retiform marking was not nearly as distinct as it is now. We will try to keep the case under observation and do a great deal more work on it. The basal metabolic rate is within normal limits.

BOWEN'S DISEASE. Presented by DR. E. A. OLIVER.

A man, aged 63, married, had a lesion of the skin of seven years' duration. It began as a small "spot," which gradually enlarged. The area was intensely pruritic.

Inspection revealed an area on the inner aspect of the right thigh which was sharply marginated, purplish and about 10 by 7 cm. in its greatest measurements. The center was verrucose and slightly scaling. The periphery was flat and clean cut.

At biopsy, a specimen from the verrucose center revealed moderate parakeratosis in some areas. There were irregular acanthosis and hypertrophy of the

papillae somewhat suggestive of a verruca. In the upper epidermis there were in many areas the typical types of cells seen in Bowen's disease, large dyskeratotic cells and also multinucleated giant cells. The cutis was the site of an intense cellular reaction consisting chiefly of round cells and plasma cells. One half of a specimen taken from the edge for biopsy showed normal epidermis; the other half showed a regular acanthosis much like that seen in lichen planus, but even in this beginning stage dyskeratotic cells were found in the upper epidermis. The cutis had a marked infiltration of round cells, sharply defined at its lower border. It resembled in every respect the photographs in Bowen's original article (*J. Cutan. Dis.*, 1912).

DISCUSSION

DR. CLARK W. FINNERUD: The patient complainted of intense itching. I first thought that the condition was a modification of hypertrophic lichen planus, but considered Bowen's disease as possible. We took a section and found it compatible with Bowen's disease. Several years ago Dr. Ornsby presented a patient with a lesion almost identical to this one, there being, however, no pruritus.

DR. RUBEN NOMLAND: The section from the edge of the growth is almost identical with the original description by Bowen, and the one from the center is almost as typical.

DR. J. H. MITCHELL: I understood the patient to say that he is a Negro, and the occurrence of such a disorder in a Negro, particularly on the thigh, is interesting.

DR. E. A. OLIVER: I made the diagnosis of Bowen's disease when we first saw the patient. I made that diagnosis because the lesion closely resembles a typical lesion of Bowen's disease on the abdomen, which we presented about a year ago. Several discussers have inquired as to whether the patient carried his matches in a place that could make this a match-box dermatitis. He emphatically asserts that he never carries matches in his pocket. He states that he formerly had a small restaurant, and it was his habit, when talking, to stand by his desk and rub his leg against the desk at that point, and he thinks that the lesion started in this way.

RHINOSCLEROMA. Presented by DR. H. R. FOERSTER and DR. LESTER WIEDER.

J. H., a man, aged 36, single, born in Ukraine, had lived in the United States for the past fourteen years. He first noted lesions at the orifices of the nares nine months ago, which slowly enlarged. During this period he also noted increasing difficulty in nasal respiration and moderate dysphagia. During the past month, almost complete occlusion of the nares had taken place. There had been no other symptom except mild local pain on pressure. He stated that he has lost about 25 pounds (11.3 Kg.) since the onset of his symptoms, probably occasioned largely by difficulty in eating. The past history was irrelevant. No treatment had been attempted up to the time the patient was first observed at the Milwaukee County Dispensary.

Examination showed the patient to be well nourished and well developed; he did not appear ill. He showed the typical facies of the habitual mouth breather. Emitting from the floor of the right naris onto the upper lip was a linear, sharply elevated and defined, flat-topped, firmly infiltrated, dully inflammatory plaque. Pea-sized papules with similar characteristics were found symmetrically placed on either ala. The nares were almost completely occluded by a similar process that filled their lumina. The walls of the visible portions of the nasopharynx, oral pharynx, posterior pillars and soft palate also showed a diffuse infiltration, which caused stiffening of these parts and a diminution of the size of the pharyngeal cavity. The general physical examination otherwise gave negative results.

Sections of tissue from the lesion on the lip showed little epidermal change. The pathologic changes consisted of a diffuse, dense, cellular infiltrate involving all layers of the dermis and composed largely of plasma cells and young con-

nective tissue cells, with numerous Russell-Plimmer's bodies and vacuolated cells of the type described by Mikulicz. Smears from the base of the wound made when a specimen was taken for biopsy and from the floor of the naris showed the capsulated bacillus of von Frisch in enormous numbers, and cultures on various mediums showed growth within from twenty-four to forty-eight hours. The patient's serum agglutinated the organism in dilutions of 1:200. The Wassermann and Kline tests gave negative reactions. The blood count showed: hemoglobin, 90 per cent; red cells, 4,640,000; white cells, 10,600; the differential count showed: polymorphonuclear neutrophils, 54 per cent, polymorphonuclear eosinophils, 1 per cent; polymorphonuclear basophils, 1 per cent; lymphocytes, 43 per cent; large mononuclears, 1 per cent. Repeated urinalyses gave negative results. The temperature varied between 98 and 99.4 F.

The patient was given potassium iodide by mouth in ascending doses; weekly injections of neoarsphenamine had been given. On March 12, a dose of filtered x-rays was administered to the pharyngeal vault. An autogenous vaccine is being prepared, and the effect of treatment will be reported at future meetings.

DISCUSSION

DR. DAVID LIEBERTHAL: I think that this is the second case of this disorder to be presented before this Society since its organization. I demonstrated the first case about twenty years ago. It concerned a native American woman, who was cured by roentgen therapy. Dr. Foerster's patient is not a native, but was born in Ukraine, Russia, in the large belt of Southeastern Europe, where most cases have been occurring.

DR. A. W. STILLIANS: I was very much pleased to see this case because I have seen so few. I was also interested in the culture.

DR. PAUL A. O'LEARY: Rhinoscleroma is sufficiently rare to warrant mention of a case in a patient whom we have treated and observed. We obtained a satisfactory therapeutic result by the use of radium in an Austrian who had rhinoscleroma. It is necessary to treat intensively, particularly the nasopharynx, and frequently to do reconstructive plastic surgery following the radium therapy. The smear has been negative for several years.

DR. H. E. MICHELSON: In the earlier days in Vienna, rhinoscleroma was very common. Kaposi devotes considerable space in his book to the condition.

DR. H. R. FOERSTER: This case presents a number of interesting problems. One has reference to the probable origin of the infection and another to the question of contagion. The patient has been in this country for fourteen years and was not aware of having the infection until about nine months ago. Did the infection develop in this country or has it been latent? I am of the opinion that the infection may have been present in mild form or in a latent state because the patient came from Ukraine, where rhinoscleroma is endemic, and the development of the disease in this country is extremely rare. The finding of the Frisch bacilli in abundance in the nasal secretions indicates the desirability of rigid isolation, but the patient may be entitled to as much freedom as is now enjoyed by a person with lepra or with tuberculosis. The patient has received only one roentgen treatment, directed at the involvement of the soft palate, but we intend pushing the treatment energetically in intensive dosage to the entire zone of involvement. We are pleased to receive Dr. O'Leary's suggestion regarding treatment with radium as an alternative. This patient was seen by nose and throat and plastic surgeons at the time Dr. Wieder presented him at a recent County Hospital staff meeting, and surgical treatment was considered out of the question because of the widespread character of the disease. I believe that energetic roentgen and radium treatment is the primary indication, with the possible consideration of plastic surgery for the repair of subsequent contractures if the treatment proves successful.

DR. LESTER WIEDER: We have had this patient under casual observation for about two months, but the treatment has not been carried out very intensively as he has not been under our direct control during that time. He has had iodides by mouth and about six injections of neoarsphenamine, but during that time the

condition has definitely progressed. He has more difficulty in swallowing, and the laryngeal involvement is more pronounced. We are having an autogenous vaccine prepared at this time. In the literature there are some reports of good results from vaccine therapy, but it probably is only another helpful measure and not curative. We have not attempted any treatment with radium and he has had only a single exposure of intensive x-rays to the pharynx. In the recent "Handbuch," the volume on infectious diseases contains about seven pages of closely tabulated references to this disease, but only a few from the American literature. The condition is extremely rare in native-born Americans, but such cases have been reported by Wende and Lieberthal and from the Mayo Clinic.

One factor that may have accounted for the development of the condition in this patient at this late date may be the fact that he has been in contact with fellow countrymen, one of whom may have had an undiagnosed similar infection. If only small, occult, nasal lesions were present, with little nasal discharge, the infection might be present for some time without the patient seeking relief. The rate at which the condition has been progressing since the patient has been under our observation makes me think that it is not of long duration. It is interesting that rhinoscleroma has been reported from almost every country of any size in the world.

DR. J. H. MITCHELL: Is there any mention in the literature of treatment with antimony and potassium tartrate? The Donovan body is morphologically somewhat similar, and I wonder whether such therapy might not be of value.

DR. PAUL O'LEARY: In our case we also used treatment with antimony and potassium tartrate, but with no appreciable improvement.

A CASE FOR DIAGNOSIS (FUNGUS INFECTION?). Presented by DR. S. W. BECKER (by invitation).

A white man, aged 25, had injured his right thumb beneath the nail eight months before admission to the clinic. The nail thickened, and the skin of the distal portion of the finger became inflamed. The other nails and fingers of the right hand became progressively involved, and then the thumb and index finger of the left hand. The lesions had been markedly pruritic. His hands had been frozen or nearly frozen on more than one occasion in the past two years.

The thumb and all fingers of the right hand were involved in their distal portions in a subacute scaly inflammatory process, and the nails were markedly thickened (about from 5 to 7 mm.), whitish, soft and friable. The nails of the thumb and index finger of the left hand were thickened, but retained a smooth surface. Next to the nail fold on the middle finger of the left hand, the nail was depressed.

Physical examination gave negative results. The Wassermann and Kahn tests of the blood and urinalysis gave negative results. Preliminary capillary studies were being made. No fungi were found in potassium hydroxide preparations or on culture.

DISCUSSION

DR. CLARK W. FINNERUD: The conditions looked to me like a mycotic process. I inquired of Dr. Becker whether there were any positive findings in fresh preparations or cultures, but I understand that there were not. I think that it is either due to a yeast or is a true fungus infection.

DR. S. W. BECKER: We thought that the condition probably was of a fungus nature, but the patient said that he had frozen his fingers on several occasions. The presence of the dermatitis was suggestive of a trophic disturbance, and we hoped to get further suggestions. We will look further for causative organisms.

FOX-FORDYCE DISEASE. Presented by DR. M. R. CARO and DR. H. RATTNER.

D. N., a Negress, aged 32, presented an eruption that had begun about three months ago, which consisted of patches of closely agglutinated, pinhead-sized, rounded, solid papules on the axillae and pubic region, with scattered similar

lesions on the breasts and the sternal region between the breasts. The lesions were noninflammatory and intensely pruritic. The patient was improving from a severe secondary dermatitis on these areas, which was caused by the application of some ointment. Her general health was good, and the Wassermann reaction of the blood was negative. She was in a very nervous state, resulting from the loss of her savings in a bank failure several months ago.

Histologic examination showed a slight non-nucleated scale covering the epidermis, which showed spongiosis, moderate intracellular edema and a few intra-epidermal vesicles. The corium showed an infiltration of round cells about the blood vessels. The sweat glands were greatly dilated and surrounded by a loose edematous infiltration of round cells and macrophages.

DISCUSSION

DR. F. E. SENEAR: I think that this is a typical example of Fox-Fordyce disease. The patient did have a good deal of dermatitis in the axillae, owing to the application of some irritating preparation, and I gathered that the pathologic report confirmed the diagnosis. We have been interested in this condition as it occurs in the colored race. Dr. Wien showed a case several years ago in a Negress, but owing to the fact that the condition is very prevalent in persons who present a nervous background and that the Negroes are ordinarily so placid, we talked with Dr. Weiss of St. Louis about it, and he said that he had seen one case in a Negress. Another case has been reported in the literature, so that with Dr. Wien's case and this one, we now know of four cases in the colored race. This patient volunteered the information that she is very nervous and highstrung. Apparently she presents a nervous background that we do not commonly see in her race.

DR. RUBEN NOMLAND: I think that if dermatitis of any type develops in colored persons, it is apt to be of the lichenified variety.

DR. J. H. MITCHELL: My understanding of Fox-Fordyce disease is that there is no lichenification whatsoever; therefore, if the lichenification is not secondary in this case, it would cause me to doubt the diagnosis.

DR. S. W. BECKER: Although there were definite solitary lesions of the type seen in Fox-Fordyce disease in the periphery of these lesions, they were not prominent, and it seemed to me that the lesions might have been lichen simplex chronicus. I do not think that there was sufficient infiltration about the sweat ducts in the histologic picture to make a definite diagnosis of Fox-Fordyce disease.

DR. MARCUS R. CARO: The lichenification was present only in the axillae, and resulted from the ointment that had been applied. On the pubic region and the other areas where the disorder was definite, there was no lichenification.

PARAFFINOMA, EPITHELIOMA (PRICKLE CELL?). Presented by DR. RUBEN NOMLAND.

A man, aged 40, stated that at the age of about 10 years he was taken by his mother to a "plastic surgeon" presumably because of his sunken cheeks. At that time paraffin was injected into both cheeks and probably into the forehead.

A few years afterward the paraffin "sagged," and a deformity of the cheeks appeared which had grown worse. He thought that the lesion on the forehead had been present for many years; at one time he said eight and at another time twenty years. During the past eight months, it had grown rapidly under observation.

Inspection showed a lesion between the eyes, which was ulcerated in the center and very hard. It was attached to the underlying bone, and apparently infiltrated the surrounding skin. The total diameter was about 2.5 cm. Both cheeks were sagging and presented hard, poorly defined nodules where the paraffin had been injected.

The lesion on the forehead had once healed under roentgen therapy, but because of poor cooperation the treatment was inadequate. The patient was much opposed to surgical removal.

DISCUSSION

DR. E. A. OLIVER: I have seen this patient several times in the clinic. He says that the ulcer has been present for nineteen years. It is probably not a very malignant process, for if it were it would have progressed more than it has in that length of time. I believe that he will have the tumor excised. That is what should be done.

DR. CLARK W. FINNERUD: Recently I saw a very hard ulcer on the right side of the nose which developed in the patient secondarily to a paraffinoma on both sides. The lesion was as indurated as in this case, and presented much the same appearance. I think that the lesion on the forehead is also the result of the injection of paraffin. We can easily expect histologic changes of an epitheliomatous character in the margin of a chronic ulcer of almost any sort.

DR. J. H. MITCHELL: I had occasion to see this patient, and took a picture of him a year or so ago. The edge of the lesion on the forehead is flat on the bone, and it seems unlikely that there was any need for an injection of paraffin in that locality.

DR. H. R. FOERSTER: I was of the same opinion as Dr. Finnerud, that there had probably been an injection of paraffin at the site of the lesion. I believe that the ulcer is trophic, resulting from circulatory and nutritional disturbances. A biopsy is indicated to rule out epithelioma.

DR. E. A. OLIVER: The patient does not remember having had paraffin injected into the forehead.

LUPUS PERNIO? Presented by DR. M. H. EBERT and DR. J. H. MITCHELL.

A man, aged 65, married, had a cutaneous disorder of eighteen years' duration. The eruption was confined to the face and a bald area of the scalp and had caused no subjective sensation. It started in the butterfly area over the nose, and at first varied in intensity. For several years there had been very little change in outline or intensity. There was considerable swelling about the eyelids and over the nose, which was always worse in the morning. He had always been well.

Inspection showed fairly well defined plaques of a purplish-red tint involving the area of the zygoma and the butterfly area over the nose and cheeks, including the eyelids, the forehead and the crown of the head, which was bald. There was considerable edema of the eyelids and the nose. Very little infiltration was palpable in any of the areas. Pressure with the diascope revealed no definite lesions. There was no atrophy. Marked chilblain circulation was present in the hands. During the two months the patient had been under observation, pustular, papular lesions had not developed. An intracutaneous injection of Koch's old tuberculin gave absolutely no reaction in all dilutions down to 1:10. Roentgenograms of the chest and of the bones of the hands showed no changes that were not within normal limits.

In sections taken from the left cheek for a biopsy were seen discrete groups made up largely of epithelioid cells with a few giant cells, lymphocytes and connective tissue cells located in the upper third of the corium. Similar but less well defined infiltrate was found around the sebaceous glands and coil glands. There was considerably atrophy of the elastic tissue.

The patient had been given injections of gold sodium thiosulphate, beginning with 25 mg., without any apparent effect on the eruption.

DISCUSSION

DR. CLARK W. FINNERUD: I think that this is an interesting case, and I believe that the diagnosis is correct. There are, however, no changes under the microscope that commonly accompany lupus pernio as I have seen it. Sometimes there is a picture of sarcoid, the giant cells being absent, and sometimes a lupus vulgaris architecture. It is a diffuse process. I think that the associated lesion on the hand is also compatible with that diagnosis.

DR. HOWARD J. PARKHURST: The lesion on the face impressed me as possibly being a fading lesion of lupus erythematosus that may be associated with the lupus pernio on the hands.

DR. J. H. MITCHELL: I wish to call attention to two recent reports in the French literature on lupus tumidus, a marked edematous process in a lesion of lupus erythematosus. The last report was by Gougerot and his co-workers (*Bull. Soc. franç. de dermat. et syph.* **38**:2 [Jan.] 1931). It occurred to me that this case might fit into that category.

DR. CLARK W. FINNERUD: I have sections of lupus tumidus, which I collected in Vienna, that show a sarcoid structure throughout. This case is probably different from the lupus erythematosus tumidus of which Dr. Mitchell speaks.

DR. M. H. EBERT: When I saw this patient, the case impressed me as belonging to that group. If we could find a few follicular lesions, we could fit it in with lupus miliaris disseminatus, except for the condition about the eyes. It is not typical for lupus pernio, but it is a tuberculous structure, and I think belongs in that group. European writers, particularly the Jadassohn school, lay a great deal of emphasis on the fact that patients with lupus miliaris disseminatus do not react to tuberculin. This patient gave a negative reaction. In some cases there are reported changes in the lungs and bones and hypertrophy in the small bones of the hand, with a marmorization of the lung fields.

DR. H. E. MICHELSON: There is a tendency, in Vienna at least, to look on all cutaneous tuberculosis as originating in the blood vessels, and to think that antecedent conditions such as rosacea and chilblain circulation play a large part in determining the type.

DERMATITIS HERPETIFORMIS. Presented by DR. F. E. SENEAR and DR. M. R. CARO.

F. C., a white man, aged 20, was first seen on Nov. 20, 1930, with grouped patches of pea-sized vesicles and crusted lesions on the shoulders, buttocks, arms, thighs and legs. There were brownish pigmented areas at the sites of lesions that had healed. He stated that the eruption had been present for about three years, with many periods of partial improvement. Itching was severe at times.

While the patient was receiving solution of potassium arsenite, the eruption cleared up almost entirely. Three weeks ago medication was stopped, because of the presence of albumin in the urine. Within three days, a grouped vesicular eruption broke out on the chest, abdomen and buttocks accompanied by severe pruritus. The character of the lesions soon changed to slightly elevated, circinate patches, which enlarged by an advancing raised border, while the center became clear.

The patient presented large circinate patches with a polycystic, elevated, reddish, infiltrated border and a clearing pigmented center. The patches occupied the sternal region, abdomen, shoulders, interscapular region, sacral area and the antecubital and popliteal areas, and they showed perfect symmetry. On the forearms, buttocks and face were many excoriated, crusted papulovesicles, varying in size from that of a pea to that of a dime.

DISCUSSION

DR. H. E. MICHELSON: Dr. Weber wanted me to compare this condition with Darier's erythema annulare centrifugum. In this condition, the circles are made up of very firm ivory-colored rings. There is a slight scale but no exudation; accordingly, the disease disappears without leaving a trace, and there are no subjective symptoms.

DR. E. A. OLIVER: I suggest the use of bismuth in this case. We have recently had a young man under observation with a severe case of dermatitis herpetiformis. He improved under arsenic up to a certain point. It was felt that it was not wise to continue with arsenic medication any longer, and bismuth was substituted. He was given injections of a soluble bismuth preparation twice a

week for several months, and at present the disease has been quiescent longer than it ever had been previously. Of late we have been using the insoluble bismuth rather than the soluble form.

DR. H. R. FOERSTER: Since the question of therapy in dermatitis herpetiformis has come up, I wish to report having observed satisfactory results from the use of roentgen irradiation to spinal fields, in a manner similar to that advocated in the treatment for lichen planus.

DR. CLARK W. FINNERUD: I might mention that after using about everything I had ever heard of in the treatment of two patients with very severe cases of dermatitis herpetiformis, including autoserum in one, I gave them intramuscular injections of whole blood. One patient received six, and the other about ten, injections of 6 cc. into each side, at five day intervals. Both cases entirely cleared up, and have remained so, one for about six months and one for about three.

DR. FREDERICK SCHMIDT: I wish to substantiate what Dr. Foerster said about the value of irradiation in these cases. For a patient who had suffered from this disease for five years, I used irradiation and put him on a ketogenic diet. He has remained free from the eruption for several months.

DR. RUBEN NOMLAND: I tried irradiation in one case, without any results. Under bismuth therapy, the improvement was remarkable.

DR. H. R. FOERSTER: In cases of dermatitis herpetiformis in which the patients have been treated by spinal irradiation, beneficial results have usually not been apparent until a number of treatments have been given. We have several cases on record that have cleared up, in which the patients have remained well for considerable periods, one for as long as eighteen months. Judgment of the effects of treatment, favorable or otherwise, should not be based on single roentgen treatments or on short periods of observation.

DR. J. H. MITCHELL: I hope that irradiation therapy is more effective in Duhring's disease than it has been with me in lichen planus. In two cases of dermatitis herpetiformis I had occasion to treat lesions along the spine, but only the lesions treated locally were improved.

A CASE FOR DIAGNOSIS. Presented by DR. M. H. EBERT.

A man, aged 24, presented an eruption in the crotch that had appeared rather suddenly five weeks ago, accompanied by considerable itching. When seen two weeks later, he was given full strength Whitfield's ointment, which was used for a week but seemed very irritating. Following this he used no treatment for a week, and microscopic examination was repeated at that time.

In the saddle area of the crotch and extending around the anus, there was a brownish, pigmented, well defined discoloration. With the blade of a knife, a fine furfuraceous scale could be removed. When examined with potassium hydrate, no mycelia or spores were found in the scale on several examinations. The scale was stained with Löffler's methylene blue (methylthionine chloride, U. S. P.). With the oil immersion lens, groups of diplobacilli were visible in the scales. Cultures on Sabouraud's mediums were made one week before presentation, but there was still no growth. Cultures on blood agar cultivated at body temperature showed only contaminating staphylococci.

DISCUSSION

DR. M. H. EBERT: I wished to present this patient while I had the case under control. I hoped to prove that the organism seen in the scales was the causal one. This will require further work.

RECURRENT CHRONIC PURPURA. Presented by DR. M. R. CARO and DR. E. P. ZEISLER.

G. K., a white man, aged 22, had had recurrent attacks of purpura for the past ten years, the present attack having been present for one and one-half years. There was no history of nosebleeds; however, the skin bled excessively after

injury. Physical examination by an internist gave negative results. Examination of the blood showed: white cells, 5,400; red cells, 4,800,000; hemoglobin, 82 per cent; Wassermann reaction, negative.

When shown, the patient presented diffuse petechiae on both upper and lower extremities.

DISCUSSION

DR. PAUL A. O'LEARY: I think that this condition should be classed as purpura simplex. In this patient I think that, after the elimination of other foci, the streptococci found in the prostate would be a likely source of the purpura.

MÜLLER CONGLOBATION REACTION II (SIMPLIFIED TECHNIC). Presented by DR. FREDERICK R. SCHMIDT (by invitation).

Dr. Schmidt emphasized the simplicity of reading results in the Müller conglobation test, which received a slightly higher rating than the Kahn test at the last conference of the League of Nations. Its technic is equally as simple as that of the Kahn, and it has supplanted the other flocculation methods in a great many European clinics. They have had no false positives with Müller's new technic. One tube showed a typical positive reaction. The serum was from a patient with marked syphilis of the central nervous system of twenty years' duration. The Wassermann, Kahn and Meinicke tests of the same serum all gave negative results.

NEW YORK DERMATOLOGICAL SOCIETY

J. FRANK FRASER, M.D., *Secretary*

Regular Meeting, March 23, 1931

JEROME KINGSBURY, M.D., *President, in the Chair*

YEAST INFECTION OF THE SKIN. Presented by DR. FRANK C. COMBES.

G. C., a boy, aged 16 years, who was born in the United States, gave a history of the gradual appearance two years previous to presentation of mildly pruritic patches on various parts of the skin, which became inflamed. On examination, he presented about a dozen well defined patches, irregularly oval and circular in outline, varying in diameter from several centimeters to 20 cm., and located on the trunk, upper extremities and thighs. They were erythematous and covered with many miliary, closely aggregated acuminate papules, some of which were capped with vesicles. There was no evidence of scratching and very slight crusting. The patches were slightly raised above the surface of the skin.

Scrapings from the lesions revealed many budding yeast cells, mostly spores but a few mycelia. On culture, the colony was white, smooth and glistening, with a regular border, suggestive of the ordinary saccharomycetes. Further cultural studies were being made.

DISCUSSION

DR. HOWARD FOX: It is interesting to find a yeastlike organism in skin lesions, though their presence is not proof of causation. It may be that in the future we will find that more skin diseases are caused by yeast. I would suggest that the patient be inoculated on a normal area of skin with a culture of this organism to see if the disease can be reproduced.

DR. GEORGE M. MACKEE: It is to be hoped that more frequent efforts will be made to isolate yeast organisms in cases of various types of eczematoid eruptions. They are often found, but it is a question as to whether or not they are of etiologic importance, except in a few proved cases. Dr. George M. Lewis is now engaged in this work and will attempt skin tests with extracts made from cultures.

PROBABLE AVIAN TUBERCULOSIS OF THE SKIN. Presented by DR. RAY H. RULISON.

Miss F. T., who was shown at the Atlantic Dermatological Conference in December, 1929, as having a possible case of avian tuberculosis of the skin, was presented a second time fifteen months later to demonstrate slow but definite improvement under avian tuberculin therapy and because Dr. Elise L'Esperance of the Cornell Medical College, department of pathology, had succeeded in growing a pure culture of tubercle bacilli from a chicken inoculated with material taken from a scalp lesion of the patient. Biopsies previously made from this lesion had been examined by Dr. L'Esperance and Dr. Frank Fraser and diagnosed granuloma. Dr. Fraser said that the specimen was neither lupus erythematosus nor lupus vulgaris. Efforts to recover tubercle bacilli from the biopsy specimens failed, as did numerous other efforts.

A much larger piece of diseased scalp was removed on March 24, 1930, the material minced and treated with a sulphuric acid dilution, and the washed residue injected into chicken no. 833 at Cornell. The chicken died on April 11, showing tiny lesions in the liver and spleen. Cultures made from these organs showed a delayed, scanty growth and had to be transferred repeatedly before a characteristic growth could be obtained. This had recently been accomplished, and tubercle bacilli showing a growth consistent with the avian type were obtained. The organisms in stained smears were typical tubercle bacilli.

Since these cultures were obtained from a chicken inoculated with material from the patient, there seemed a great probability that the case was one of avian tuberculosis of the skin and, if this was so, the first case in America diagnosed and proved by isolation of the bacillus.

It still remained to be proved finally that the avian strain was the one recovered, and for this purpose prolonged animal and cultural experiment will be continued. However, it is generally believed by bacteriologists that chickens are immune to human tuberculosis, so that the tubercle bacilli recovered from this case were in all probability avian.

Meanwhile, the patient has improved under avian tuberculin therapy. Treatment was begun on Dec. 12, 1929. Twenty-four injections were given up to June 26, 1930. On July 3, the patient was tested with new tuberculins made from cultures that had been separated into the rough and the smooth varieties from Dr. L'Esperance's original culture, from which the tuberculin first used had been made. The smooth tuberculin was found to cause a much more intense reaction than the rough.

On September 25, tuberculin therapy was resumed, the new smooth preparation being used. Ten injections were given up to December 29.

On Jan. 12, 1931, a change was made to the rough (less active) tuberculin, and the injections were given up to March 23.

When presented, the patient felt extremely well and weighed 112 pounds (50.8 Kg.). The skin lesions were cicatrizing, and there was a marked decrease in the scaling. Exacerbations were less frequent and less intense, and subsided more quickly.

The case was originally presented as a possible avian tuberculosis of the skin. After the recovery of a pure culture of tubercle bacilli from a chicken inoculated with skin material from the patient by Dr. L'Esperance, and the improvement that followed treatment with avian tuberculin, the patient was presented the second time as having a probable avian tuberculosis of the skin.

DISCUSSION

DR. GEORGE M. MACKEE: Clinically it is a case of lupus erythematosus. Dr. Rulison has worked up the case thoroughly, and it seems probable that the avian tubercle bacillus is the etiologic factor. Should it eventually prove to be such a case, it would be very interesting and instructive; more of these cases ought to be dealt with in the same thorough manner. Some cases of lupus

erythematosus do not respond to the usual remedies, and it may be found that a certain percentage of these stubborn cases may be caused by the avian tubercle bacillus.

DR. BINFORD THRONE: I remember this patient very distinctly. She was sent to me at the Skin and Cancer Hospital from the Brooklyn Hospital by Dr. John C. Graham. She was given a large number of injections of a gold compound, without improvement. I agree with Dr. MacKee that when a case resembling lupus erythematosus fails to respond to a thorough course of injections of a gold compound, an examination for avian tuberculosis should be made. Dr. Rulison should be congratulated for his excellent work on this patient. She is markedly improved.

DR. HOWARD FOX: Dr. Rulison should be congratulated on his long painstaking work on this case. I should like to know how many cases of avian tuberculosis of the skin have been reported since Lipschutz's article appeared.

DR. R. H. RULISON: Four cases of avian tuberculosis of the skin have been proved — all of them in Europe. I do not present this case as proved, but because it was shown about fifteen months ago at the Atlantic Conference, and we now have a culture from the skin that is probably avian. The case was presented at the Atlantic Conference as possibly one of avian tuberculosis, and I should now like to present it as a probable case.

ALOPECIA AREATA. Presented by DR. BINFORD THRONE.

Edward U., a white man, aged 34, born in the United States, was first seen on April 15, 1929. At that time the duration of the condition was one and a half years. Examination showed an almost complete alopecia totalis. Previous treatment had been the use of stimulating lotions and ultraviolet rays.

The blood chemistry on three occasions was practically normal. The basal metabolism and the differential blood count were normal.

Urinalysis gave negative results for arsenic, but showed 0.13 mg. of lead per hundred cubic centimeters of urine.

Treatment had consisted of intravenous injections of 1 Gm. of sodium thiosulphate in 10 cc. of water, three times a week. The thiosulphate solution was prepared at the time of the injection.

The result spoke for itself. There had been a remarkable regrowth of hair.

ALOPECIA AREATA. Presented by DR. BINFORD THRONE.

Gustave N., white, aged 34, of Swedish descent, was first seen on Nov. 17, 1930. The duration of the condition at that date was three weeks.

Examination showed an alopecia that was practically total. Treatment had not been effective.

Chemical analysis of the blood on admission showed: chlorides, 462.7 mg.; sugar, 113.8 mg.; urea nitrogen, 9.4 mg., and uric acid, 2.36 mg. The basal metabolic rate was — 5.7 per cent.

Examination of the urine for lead and arsenic after an injection of sodium thiosulphate gave negative results.

Roentgen examination of the sella turcica gave negative results.

After the administration of thyroid extract for a few weeks, the basal rate was — 2.3 per cent.

On Feb. 11, 1931, chemical analysis of the blood showed: chlorides, 446.8 mg.; sugar, 134.3 mg.; urea nitrogen, 10.2 mg.; uric acid, 3.33 mg.; calcium, 10.2 mg.; phosphorus, 2.6 mg., and carbon dioxide, 65.4 per cent by volume. The product of the calcium and the phosphorus was 26.52 mg.

A dextrose tolerance test gave the following tabulated findings. The patient's weight was 154 pounds (69.9 Kg.); 250 cc. of a 50 per cent dextrose solution was given.

	Chlorides	Sugar	Urea Nitrogen	Uric Acid
Before	454.3	97.6	13.1	2.62
After ½ hour	441.0	174.3	12.3	2.44
After 1 hour	462.7	179.5	12.1	2.96
After 1½ hours	466.8	124.0	11.7	2.49
After 2 hours	462.7	139.5	11.7	2.78
After 3 hours	478.6	107.0	11.1	2.62
After 4 hours	454.3	69.0	10.0	2.62

Examination of the chemical findings showed an abnormally low urea nitrogen, probably due to liver insufficiency, a potential diabetes and a marked low blood phosphorus, the normal phosphorus content of the blood being about 3.5 mg. per hundred cubic centimeters. The product of the calcium and the phosphorus was 26.52 mg. This product, when normal, should be from 35 to 45 mg., according to different authorities.

DISCUSSION

DR. E. F. TRAUB: It seems to me more than a mere coincidence that a patient's hair should return following the elimination of lead, as accomplished by injections of sodium thiosulphate. Apparently, however, it is in cases of chronic rather than of acute lead poisoning that alopecia occurs.

DR. C. N. MYERS (by invitation): I should like to say something about the question of sodium thiosulphate from the point of view of preparation, as well as about its direct action from a physiologic point of view. It is my own opinion that many untoward results which have been reported concerning sodium thiosulphate have been due directly to the character of the material that has been used. That is to say, many persons have attempted to give ordinary drug store material by mouth, either as crystals or in solution. Others have attempted to use autoclaved solutions, and the result has been unsatisfactory from many points of view. During the course of the last ten years, I have had occasion to examine sodium thiosulphate from a great many points of view, and as a result of these studies, I have arrived at a conclusion that leads me to believe that only solutions freshly prepared from sterile crystals will produce clinical results.

In 1927, Frazier reported two cases of purpuric vesicobullous dermatitis subsequent to the intravenous injection of sodium thiosulphate (J. A. M. A. **88**:537 [Feb. 19] 1927).

V. Voegtlin of the United States Public Health Service, showed that when solutions were autoclaved, they became more toxic.

S. Goldblatt, of the University of Cincinnati, has also definitely shown that the ordinary chemically pure sodium thiosulphate is unsatisfactory for intravenous use, and that when dogs were given this material, in many instances convulsions were brought about. In fact, Goldblatt has definitely stated the necessity for repurifying sodium thiosulphate that is to be employed for intravenous use.

In my own investigations it has been shown that the toxicity of sodium thiosulphate for laboratory animals is of a very low order, that is to say, they will tolerate enormous quantities of the drug. This is confirmed by the work of Ravaut of Paris, who has given very large doses of sodium thiosulphate at each injection, the amount being 4 Gm. or over.

Goldblatt has been able to separate the material that produces convulsions from ordinary chemically pure sodium thiosulphate.

Our own experiences have shown that there is definitely an increased metallic output when the freshly prepared sodium thiosulphate from sterile crystals is employed.

Jones, of Atlanta (*South M. J.* **21**:481 [June] 1928), has likewise shown that the freshly prepared solutions are distinctly preferable in the treatment for various conditions that are amenable to sodium thiosulphate therapy.

Approximately 70 per cent of the cases of alopecia areata showed an abnormal quantity either of arsenic or lead at the same time or at different times. This entire investigation was reported at the International Dermatological Congress held in Copenhagen in August, 1930. A very large number of patients have a restoration of hair following these injections. It might be added, however, that

all these patients undergo a complete chemical analysis of the blood, a basal metabolic test and a check-up on the condition of their eyes and focal infections, so that no possibility of some other condition being the cause of the alopecia may escape our attention.

Additional information on the use of sodium thiosulphate has been reported by a large number of investigators, and many of these findings have been confirmed by investigators who are widely separated.

When sodium thiosulphate is administered orally, it is destroyed by the action of the hydrochloric acid in the stomach, unless enormous quantities are given at each dose. Any one can easily demonstrate this situation by taking a small amount of solution, adding a drop of hydrochloric acid and noting the resulting turbidity, thus showing that the sodium thiosulphate has been decomposed. If sodium thiosulphate is to be employed orally, it should be given in the form of enterically coated tablets.

DR. BINFORD THRONE: In reply to an inquiry from one of the members, I do not know of any difference between alopecia totalis and alopecia areata, but I think that both types belong to the same class. Dr. Herman Feit, in our service at the Skin and Cancer Hospital, studied this condition in its relation to chronic metallic retention. His attention to this was caused by the similarity of the hairs in alopecia areata to those in thallium epilation and to the frequent finding of the disturbed ratio between chloride and sugar which we have found in other conditions associated with retention of the heavy metals. This study was reported to the International Congress of Dermatology in Copenhagen. In the study, 300 cases were examined. Lead or arsenic or both were found in 75 per cent of the cases. Biopsy was done in 7 cases. All of these 7 biopsy specimens showed arsenic both on chemical examination and on histochemical staining. The exact method whereby the lead or arsenic is retained is difficult to say. They combine with body proteins and act as toxins. Of course, how much their local presence in the skin has to do with the production of the loss of hair, it is impossible to state. There is also the action of the metals on the vegetative nervous system and on the endocrine glands, which certainly have to do with the growth and nutrition of the hair. Dr. Feit also found on pharmacologic tests that these patients had a sympathicotonia.

The remarkable regrowth of hair in this case is certainly suggestive of a causal relationship between the alopecia and the retained lead. We have had other cases exactly similar to this one. One of them was in a man who had been totally bald for over eight years; his urine showed both arsenic and lead. Another was in a woman from Indianapolis, who also showed retention of both metals. Under eliminative treatment, both are getting their hair back. We have found the use of prepared solutions of sodium thiosulphate to be absolutely useless. In our service, we never use a solution that is even one-half hour old.

DR. JOHN E. LANE: We have a lot of facts about individual cases of alopecia areata, but to my mind there is nothing that has proved to be a definite cause for any case of alopecia, total or partial. So far as I have been able to convince myself, no treatment does any good; the air grows back or it does not grow back without the influence of treatment.

DR. GEORGE M. MACKEE: As a result of my experience, I am inclined to believe that recovery in cases of alopecia areata is spontaneous. In some instances, physical therapy and various topical remedies may be useful as stimulants, but I know of no convincing evidence against spontaneous recovery in the majority of cases. We should, however, continue to search for the real cause of the disease, and to evaluate various remedial methods. In this sense, Dr. Throne's excellent presentation is instructing and significant. I have seen no untoward results from the intravenous administration of sodium thiosulphate. If stale solutions are valueless, the amount of literature that has apparently demonstrated the efficacy of the drug must also be valueless.

DR. HOWARD FOX: I should like to ask why, if treatment is no good, do we continue to treat patients?

DR. GEORGE M. MACKEE: I treat patients simply because I hope to accomplish some good. In other words, while I am inclined to believe that recovery is for the most part spontaneous, I am not certain. It may not be so in some cases.

DR. C. N. MYERS: We are continuing the investigations on alopecia areata with the idea of ascertaining what other facts may be associated with this condition. As far as the character of this condition is concerned, some of the patients have permitted us to take sufficient material for biopsy in order to study the specimen from a microchemical and histopathologic point of view. At the present time, arsenic has been demonstrated in these specimens by both these methods. It is hoped that a microchemical method may be employed for the detection of lead. If you examine the scalp of patients with alopecia areata by means of a capillary microscope, particularly the scalps of those suffering from alopecia totalis, you will find that there is a constriction of the capillaries. This fits in with the physiologic action of the metals on the capillaries. We have not depended on our own observations of this phenomenon, but the matter has been discussed with those who are experienced in the study of blood vessel changes, particularly of a microscopic nature. Whether the alopecia is directly associated with arsenic or lead, per se, I do not know. We have made no claims that these metals per se are the causative factor, but it is important to point out at this time that such an observation fits in very well with the previous ideas of the otoxic theory. It is also somewhat in agreement with the investigations made by Poehlman and likewise with those of Dohi. It is my understanding that each of these investigators regards alopecia areata and alopecia totalis from the point of view of toxic action. If one finds metals in unusual quantities in these denuded areas when controls on normal skins have been used for comparative purposes, it is logical that one must assume that the metal has played some part in the production of this condition. Whether it has been from the point of view of toxic action or whether it is due to the vasoconstrictor action must be determined. Furthermore, when eliminative treatment has been carried out on the patients suffering from these manifestations, regrowth of hair takes place. Examination of the blood, urine and skin of many of these patients shows the presence of large quantities of metals.

DR. BINFORD THRONE: In reply to Dr. Traub, loss of hair has frequently been seen in cases of exfoliative dermatitis following neoarsphenamine.

DR. E. F. TRAUB: In connection with this work on lead poisoning, I wrote to a physician who had been treating thousands of patients for more or less acute lead poisoning over a period of years, and to the best of his knowledge he had not noted any cases of alopecia.

DR. C. N. MYERS: If you write to Dr. H. L. Claasen, Provident Bank Building, Cincinnati, he will be glad to give the data on a case of acute lead poisoning followed by total alopecia.

DR. BINFORD THRONE: In regard to the other 25 per cent of patients in whom no metal retention is found, I might say that in many of them we have been unable to find anything definite. Many of them show focal infections, the removal of which seems to have a beneficial effect on the regrowth of the hair; others show errors of refraction the correction of which seems to help. One patient of mine, a boy about 20 years of age, showed astigmatism; this was corrected by proper glasses, and his hair grew in. He left the city to visit his family in the west; while there he broke his glasses and the alopecia recurred. On his return to New York, he got new glasses, and his hair grew in again. I was able to follow him for four years, and during that time he had no recurrence of the alopecia. Other cases which I have been able to follow have shown similar results. These cases cannot help being very striking.

To the query as to how patients who live in the same environment and on the same food regain their hair, I can make no definite answer. Chemical

analyses of the blood done at comparatively frequent intervals would in all probability show definite changes which might throw some light on the subject.

I was anxious to get some information in regard to the second case. In that, the only findings were a potential diabetes and probably a hypoparathyroidism.

A Case for Diagnosis (Onychomycosis?). Presented by Dr. Paul E. Bechet.

T. A., a physician, aged 59, had noticed a peculiar, yellowish discoloration at the distal end of several finger-nails, with some loosening from their beds. The affected nails were somewhat brittle and depressed; some were suggestive of "spoon nails," others of onychomycosis. As the nails had been affected for only a few months, previously being entirely normal, the large group of hereditary dystrophies of the nails could not be considered.

DISCUSSION

Dr. George M. MacKee: I think it quite probable that we are dealing with a case of koilonychia. The patient is a surgeon, and uses corrosive mercuric chloride solution, strong soap and other alkalis. Many cases of koilonychia are congenital, but are not manifested unless strong irritants are used. I suggest that, if possible, the patient refrain from the use of such chemicals and observe whether or not the nails improve.

Dr. John E. Lane: I have not seen this particular deformity in ringworm of the nails.

Dr. Howard Fox: I do not know why any one should hesitate to call this disease koilonychia, the technical term for spoon-shaped nails which the patient presents. I was under the impression that no one knew the cause of this peculiar dystrophy. I showed a case before this society in a man who had had syphilis; I should like to know whether the question of syphilis was taken up in Dr. Bechet's case.

Dr. Paul E. Bechet: I am grateful for the discussion and the therapeutic suggestions, and will be glad to follow them out. Believing in the possibility of a tinea infection, I treated the patient as has been suggested, but with barren results. I would not favor the diagnosis of koilonychia, as the patient is 59 years of age and has had normal nails until only a few months ago.

Angioma. Presented by Dr. Charles M. Williams.

E. G., a white girl, aged 7, presented a lesion on the right thigh, leg and foot. At first glance, this seemed to be only an inconspicuous superficial angioma; but on standing, the whole member became swollen and somewhat bluish, and painful to a degree that interfered with locomotion. There was evidently a deep and very extensive cavernous nevus.

DISCUSSION

Dr. Eugene F. Traub: Dr. Williams asked for therapeutic suggestions, and I wish to recall to his mind a patient treated at the hospital by injections of dextrose. The patient was a boy of 19 with a very large cavernous angioma on the foot and leg, just above the ankle. The result with this type of injection was rather quickly achieved, was comparatively painless, and the appearance of the skin subsequent to the injection was very good.

Psoriasis and Lichen Planus in the Same Patient. Presented by Dr. Charles M. Williams.

F. K., a white woman, aged 46, a Russian, presented scattered lesions typical of psoriasis which had been present off and on for over fifteen years. For a month prior to presentation, she had also had lesions typical of lichen planus.

LINGUA NIGRA. Presented by DR. HOWARD FOX.

A. W., mulatto, a man, aged 41, had noticed a blackish patch on his tongue for sixteen days. He had previously taken two bottles of a dark medicine for "nervousness," the medicine being given him by a druggist. Later, on account of a generalized itching he was sent to the Harlem Hospital, where the eruption was accidentally discovered, the patient at the time being unaware of its presence.

He presented a quadrangular patch on the dorsum of the tongue in front of the circumvallate papillae, extending to within ¼ inch (0.6 cm.) of the side and ½ inch (1.27 cm.) of the tip of the tongue. It was brownish black and showed the presence of elongated filiform papillae, which were not easily removed by ordinary scraping. The appearance was like "dog's fur which had been moistened." There had been no treatment.

NOTE: Subsequent microscopic examination and cultures showed no fungus. It was also ascertained that the medicine which had been taken contained glycyrrhiza.

CARCINOMA OF THE TONGUE. Presented by DR. FRED WISE.

J. F., a man, aged 66, born in Scotland, presented himself at the New York Post-Graduate Hospital Skin Clinic complaining of a growth on the tongue of two years' duration. The growth was progressive, and accompanying it was a definite thickening of speech and a peculiar dry taste of the mouth. The patient smoked about one tin of tobacco weekly (1½ ounces [45 cc.]), rarely a cigaret or cigars. The stem of his pipe was of the common black hard rubber. The patient also gave a history of chancre thirty years previously. For this he had received "one injection into the hip."

On examination, the patient presented a large cauliflower, hardened, irregular growth, involving pretty nearly the entire tongue. The base of the tongue showed some leukoplakia, and the sides, smooth atrophy. The Wassermann test was 4+. There were no palpable glands.

DISCUSSION

DR. J. J. ELLER: I think that this is carcinoma on a syphilitic lesion.

DR. JOHN E. LANE: I think that it is carcinoma developing on a gumma. Make a biopsy and a therapeutic test, and do not wait too long for excision.

DR. GEORGE M. MACKEE: My opinion differs from those thus far expressed. I do not believe that the lesion is or ever was a gumma. I believe that the patient has had syphilis for many years; that interstitial glossitis and leukoplakia developed, and that the carcinoma developed subsequently, possibly on a verrucose or papillomatous leukoplakia. I think that the entire lesion is carcinoma. It is not rare for carcinoma to exist for many months without evidence of metastasis, especially when it develops in sclerotic tissue, such as interstitial glossitis, roentgen ray and radium sequelae, etc.

As to treatment, I hesitate to advise a radical operation because of the patient's age and the short expectancy of life. In this particular case, I favor electrocoagulation with perhaps radium implantation, followed by deep roentgen therapy to the neck.

DR. BINFORD THRONE: I agree with Dr. MacKee, and think that before treatment for the carcinoma is instituted, the patient should receive treatment for syphilis. A few injections of arsphenamine will put him in better condition to stand the treatment, either surgical or whatever kind is determined on.

DR. E. F. TRAUB: I agree with Dr. MacKee's interpretation of the case, but I believe that the prognosis would be better with the removal of the involved portion of the tongue, the electric cutting current being used and only a short distance being kept posterior to the apparent termination of the lesion. The outlook in these cases, of course, is better the more anterior the lesion is on the

tongue; but in this case the patient has perfect movement of the tongue, indicating that there is probably little if any depth or base involvement. Another symptom that is lacking is any great amount of pain, also suggesting a rather superficial lesion. The healing, discomfort and shock from such a procedure under local anesthesia, even at this patient's age, would not be much greater than if he were to receive a dose of radium sufficiently strong to destroy the lesion, which would naturally cause sloughing.

MYCOSIS FUNGOIDES. Presented by DR. FRED WISE.

G. B., a man, aged 48, was admitted to the New York Post-Graduate Hospital on Oct. 29, 1929, with an eruption of fifteen months' duration. The eruption had started on the dorsum of the hands and then gradually spread to and involved other portions of the body. During his stay in the hospital, the patient received injections of sodium arsenate and roentgen treatment to the various lesions. Since November, 1930, he had attended the outpatient department and had received roentgen treatment locally. The eruption had failed to respond to any therapy.

The lesions were typical, violaceous-colored, cutaneous tumors of various sizes. The histology was that of mycosis fungoides.

DISCUSSION

DR. GEORGE M. MACKEE: I would hesitate to force the issue with roentgen rays. I favor a rest from roentgen rays for a year, and then perhaps another trial. A point of significance is that according to the history, the condition did not yield to roentgen therapy from the beginning, and that is against mycosis fungoides and in favor of leukemia cutis, which quite often is not markedly influenced by such treatment.

ONYCHAUXIS AND KERATOSIS PLANTARIS. Presented by DR. FRANK C. COMBES.

W. C., a boy, aged 12, born in the United States, presented curious dystrophies associated with Fröhlich's syndrome. His father and mother were first cousins. He was an only child, and the family history was negative for a similar or related condition. The complaint was congenital in origin. He presented the usual pathologic picture, with an overproduction of fat and underdevelopment of the genitals. His finger-nails showed onychauxis with hypertrophy and ridges, and were opaque and brittle. The toe-nails were similarly affected and presented onychogryposis to a marked degree. Some of them made a complete circle in either the dorsal or plantar direction. They were extremely tender. On the palm and soles, particularly the latter, were many thick keratotic patches, from 0.5 to 1 cm. in depth, which were traversed with fissures. The basal metabolism was —21 per cent.

DISCUSSION

DR. CHARLES M. WILLIAMS: This case is interesting from two points of view, heredity and endocrine etiology. Fröhlich's syndrome is certainly dependent on pituitary disorder, and hyperkeratosis — from which this patient suffers in addition to onychauxis — may be of pituitary origin, though this is uncertain. The normal development of the body is dependent on proper endocrine function. How much these hereditary dyskeratoses are dependent on a tendency to dysfunction of the endocrines is worthy of careful study. Many abnormalities are more common in the offspring of consanguineous marriages, as is the case here, than in the average population; but there is no evidence that consanguinity by itself ever produces any malformation. If the tendency to an abnormality is recessive, it may persist in a family indefinitely, without ever becoming apparent, and only by the mating of two persons carrying this trait can offspring be produced in which the trait will come to the surface. The chances of a person carrying that trait mating with another carrying the same trait are much greater in matings within the family than in out-matings.

DR. F. C. COMBES: I thank Dr. Williams for his interesting remarks on Fröhlich's syndrome. Alderson (ARCH. DERMAT. & SYPH. **5**:602 [May] 1922) reported a case of onychauxis which was favorably influenced by thyroid therapy. In another case, Lisser (ARCH. DERMAT. & SYPH. **10**:180 [Aug.] 1924) transplanted testicular substance, with very good results. We are going to treat this patient with pituitary gland and thyroid, and see if we can influence the condition.

LICHEN PLANUS LINEARIS. Presented by DR. HOWARD FOX.

Mrs. B. P., aged 38, first noticed the eruption about five months previous to presentation. She had been very "nervous" for ten years, and unusually so—owing to illness in her family—just before the outbreak of the eruption. The lesions extended from the upper part of the right buttock downward, as a band of varying width, to the posterior aspect of the middle of the leg. The widest part of the band (2 inches) was situated just below the gluteal fold. In places, the band narrowed to a single row of papules. There were a few discrete papules showing the characteristics of typical lichen planus. Most of them, however, had coalesced to form a solid linear mass with fine scales and typical violaceous color. The eruption caused considerable itching, a few scratch marks being present. In addition to the linear area, there was a dime-sized patch in the right trochanteric region and a single one in the left axilla. The mucous membrane of the mouth was normal. The patient had never had any previous skin disease, and for the disease under discussion she had received a single injection of arsenic.

CLEVELAND DERMATOLOGICAL SOCIETY

H. J. PARKHURST, M.D., *Reporter*

Regular Meeting, March 26, 1931

J. R. DRIVER, M.D., *Presiding*

LOCALIZED NEUROFIBROMATOSIS. Presented by DR. JOHN A. GAMMEL.

T. N., a man, aged 60, had observed the development of bluish nodules on the right side of the abdomen during the last year. Except for an occasional stinging sensation, there was no discomfort. All of the lesions were limited to the segment between the lumbar spinal column and the midline of the epigastrium. There were twenty-five or thirty soft, more or less elevated, pea-sized, noninflammatory, purplish nodules, most of which were on the abdomen, above and to the right of the umbilicus. There were also a few coin-sized, bluish nodules on the right flank and a light brown, palm-sized patch and a pendulous fibroma on the left flank. Histologic observations showed an extensive proliferation of fibrous connective tissue, with numerous, small, thick-walled blood vessels. Degenerative changes were found in the axis of nerves.

DISCUSSION

DR. H. N. COLE: The distribution is unusual, but neurofibromas sometimes follow the nerves.

A CASE FOR DIAGNOSIS. Presented by DR. H. F. DEWOLF.

E. N., a man, aged 58, from the City Hospital, service of Dr. H. N. Cole and Dr. J. R. Driver, had first noticed a "lump" on the posterior aspect of the right thigh three months previously. It was diagnosed as a carbuncle and was incised, without benefit. Gradually enlarging, it had become rather painful. There had been no definite systemic symptoms.

In the medial posterior portion in the middle third of the right thigh, there was a raised, violaceous lesion of granulomatous appearance, 10 cm. in length and 4 cm. in width, the long axis corresponding with that of the thigh. The surrounding area was indurated, and there was some tenderness. The right femoral lymph nodes were large, firm and slightly tender.

On two occasions the Wassermann reaction had been negative. Roentgen studies showed the fields of both lungs to be filled with small, irregular, calcified nodules, about 3 mm. in diameter. Slight periostitis was found in the upper half of the right femur, and there was a large calcified artery in the soft tissues. Histologic studies revealed a chronic inflammatory process, without evidence of tuberculosis. A streptothrix was found in smears and cultures, and a yeastlike organism was found in cultures from the sputum. The erythrocyte count was 3,770,000, and the percentage of hemoglobin was 70. The leukocytes numbered 7,150; 53 per cent were neutrophils; 28 per cent, small mononuclears; 6 per cent, large mononuclears; 1 per cent, transitionals; 11 per cent, eosinophils, and 1 per cent cent, basophils.

DISCUSSION

DR. J. A. GAMMEL: I consider this a mycotic disease, and the possibility of granuloma coccidioides must not be overlooked. Organisms recovered from the sputum are not of much significance unless they can also be recovered from the cutaneous lesions. Cutaneous tests with killed cultures of the organism recovered from the sputum would be valuable. A culture of the blood should also be made. Is there a history of trauma preceding the appearance of the lesion? Biopsy should reveal the organism. I do not think that this lesion is tuberculous.

DR. J. V. VANCLEVE: Physicians from the tuberculosis department saw the patient and the roentgenograms taken of his chest. They suggest that this might be a case of infection due to Aspergillus.

DR. J. A. GAMMEL: The condition might be due to Aspergillus. This organism is found everywhere. It forms many spores. Black or white grains should be found in the lesion if it is due to Aspergillus. The organism recovered in this case is not releated to Aspergillus.

FAVUS. Presented by DR. H. F. DEWOLF.

B. M., a girl, aged 12 years, from the City Hospital, service of Dr. H. N. Cole and Dr. J. R. Driver, stated that her father, who had come from Poland in his infancy, had been dead for six years. She presented lesions of the scalp of four years' duration, in the form of a thick, yellowish, mortarlike mass, with scanty, dry, lusterless hairs and a mouselike odor. There were no lesions on the glabrous skin.

G. M., the sister, aged 8, had a few similar crusts on the scalp and several on the face and body, measuring from 0.2 to 0.3 cm. in diameter. The duration of the condition was unknown.

R. M., the brother, aged 2½ years, also had a few crusts on the scalp, and none on the glabrous skin. The lesions had been present for two and one half months.

Typical organisms of favus were found in the lesions of all three children.

A CASE FOR DIAGNOSIS (ERYTHEMA PERNIO?). Presented by DR. H. F. DEWOLF.

R. M., a man, aged 23, from the City Hospital stated that during the past six or seven years, without subjective symptoms, an eruption had appeared on the heels every spring and had persisted throughout the warmer months, accompanied by hyperidrosis. His feet had been frozen seven years previously. On the median aspect of the right heel there was a sharply outlined, large coin-sized patch, with a whitish, sodden center and a narrow, purplish-red areola. Hyperhidrosis, which was limited to the lesion, was noted.

DISCUSSION

DR. L. J. CARSON: I saw a similar case ten years ago, which was, however, of acute onset and involved the feet and the hands. There was no evidence of dermatophytosis. There was a history of frostbite in the patient presented; my patient gave no history of such occurrence. I consider the condition lupus pernio. Hyperhidrosis may be a factor. The possibility of dermatophytosis, although apparently remote, must be excluded carefully.

DR. E. W. NETHERTON: I favor a diagnosis of hyperhidrosis.

DR. H. G. MISKJIAN: I agree with Dr. Netherton. There is no erythema excepting that occurring secondary to maceration.

DR. J. R. DRIVER: The foot is dry, except in the affected area. The maceration is due to sweat.

MYCOSIS FUNGOIDES. Presented by DR. H. F. DEWOLF.

R. C., a woman, aged 45, from the City Hospital, had been presented before the Society in November, 1930, with a generalized eruption of four or five years' duration. There were numerous, dull red, infiltrated plaques and a few fungating areas. Since the previous presentation, involutional melancholia had developed.

DISCUSSION

DR. H. T. PHILLIPS, Wheeling, W. Va.: I agree with the diagnosis. Apparently the mental aberration is not connected with the condition of the skin. As the mycosis fungoides is of four or five years' duration, it is remarkable that it has shown no severe manifestations. What treatment has been used?

DR. H. N. COLE: We presented this patient four months ago. The eruption is more pronounced now.

DR. H. F. DEWOLF: Recently she received ultraviolet irradiation at the Psychopathic Hospital.

DR. J. R. DRIVER: Roentgen irradiation would be advisable to retard the process.

A CASE FOR DIAGNOSIS (DERMATOSIS INDUSTRIALS?). Presented by DR. H. F. DEWOLF.

W. C., a man, aged 27, from the City Hospital, presented a dry, erythematous, scaling condition of the hands and feet, of seven years' duration. The condition had appeared while he was working in a coal mine where his feet and hands were constantly in salt water. It was worse during the winter. The dorsa of the hands and feet were more markedly affected than the palms and soles. There was no familial history of a similar complaint.

DISCUSSION

DR. H. N. COLE: There is a mild follicular hyperkeratosis on the back of the hands. It is not observed elsewhere, and it suggests the possibility of early pityriasis rubra pilaris.

DR. H. F. DEWOLF: Could this eruption be occupational? The patient believes that it is, for it first appeared while he was a miner with his feet and hands often immersed in salty water.

DR. J. R. DRIVER: I do not see how that would explain the persistent lesions of the feet.

SYPHILIS FROM TRANSFUSION. Presented by DR. C. L. CUMMER.

Mrs. M. J., a Negress, aged 34, had had a miscarriage in October, 1930, followed by hemorrhage and severe anemia. Transfusion had been performed, with her sister as donor. The donor's blood had been typed, but no Wassermann test

had been made. The patient had not felt well since the transfusion, complaining especially of headaches.

On Feb. 2, 1931, she had visited the Charity Hospital Dispensary, presenting enlarged cervical lymph nodes, without eruption. On February 16, she had returned with a generalized corymbose papulopustular eruption, and a strongly positive Wassermann reaction was found. Evidence of genital or extragenital primary lesion could not be found in the patient or in her husband, whose Wassermann reaction was twice found to be negative. The Wassermann reaction of the donor was strongly positive.

At the time of presentation there was a residual eruption, and the patient's general condition was poor.

DISCUSSION

DR. JOHN E. RAUSCHKOLB: The eruption is of the late type, which is seen more frequently in the Negro than in the white race. The transfusion is a possible cause. We have had two or three such cases in the dispensary of the City Hospital, and in one the recipient developed a positive Wassermann reaction before the appearance of the eruption.

DR. ROBERT E. BARNEY: Such cases are important from a medicolegal standpoint. This patient showed a marked delay in the incubation period.

DR. CLYDE L. CUMMER: I, too, felt that the incubation period seemed long, but when I examined the literature I found that there were several cases with such a protracted period of incubation.

DR. E. C. LOOMIS: We had a patient in the City Hospital Dispenasary in whom the incubation period extended for from four to five months.

DR. E. W. NETHERTON: Have you examined the donor as to signs of syphilis?

DR. C. L. CUMMER: We had difficulty even in eliciting a positive Wassermann reaction from the donor, and she came in at a time when I was not present to examine her. I think that this case illustrates the need of some rapid method of ruling out syphilis, and I feel that Kline's microscopic precipitation test should be useful in the emergency work of transfusion.

DR. BENJAMIN LEVINE: Kline's microscopic test is made as a routine measure before transfusion at the Cleveland Mount Sinai Hospital. One technician determines the blood group while another performs the Kline test, and the results of both are ready in ten minutes.

DR. HOWARD T. PHILLIPS: An accident of this sort occurred recently in Wheeling. A brother-in-law of the patient was the donor, and the recipient developed secondary syphilis nine weeks later. The donor was subsequently found to have a strongly positive Wassermann reaction. This case led to a malpractice suit, which was settled out of court.

MELANOSIS OF RIEHL. Presented by Dr. H. N. COLE and DR. J. R. DRIVER.

A man, aged 30, had first been observed on Nov. 24, 1930, with a peculiar discoloration of the skin of the face and arms, of two months' duration. For two and one half years he had been employed cutting threads on nickel, steel and cast iron bolts, which were cooled and lubricated by certain oils, including fish oil. Close contact with oil and metallic particles had been unavoidable. No untoward results had developed, excepting occasional folliculitis of the arms and legs. A short time before the onset of the present illness, the composition of the oil had been changed, though its exact ingredients remained unknown. The first lesion had then appeared as a small brown spot on the right cheek; one week later another lesion had appeared on the other cheek, and the condition had gradually progressed, without subjective symptoms. There had been little improvement up to the time of presentation.

The skin of the cheeks, the upper half of the forehead, the anterior portion of the scalp, the lateral aspects of the neck, the anterior portions of the shoulders and the arms and flexor surfaces of the forearms presented bilaterally symmetrical areas of hyperpigmentation. The individual lesions were tiny grouped macules ranging from brown to slate color, which, on closer examination, were seen to form dark areolae about hair follicles, wherever these were present. This was best seen on the arms, shoulders and forehead, where the pigment existed as a diffuse mottling. Over the masseter muscle on the cheeks and below the angle of the jaw on the neck, pigment formed large confluent patches.

The complete physical examination revealed no abnormality. Sections showed a marked formation of pigment, aggregated especially in the papillary and subpapillary layers of the corium. Most of the pigment was distributed in large oval chromatophores, and a smaller amount was found in some of the connective tissue cells, while the extracellular masses appeared as clusters of more or less uniform dark to light brown particles. A small amount of pigment was found in the mononuclear infiltration about the capillaries deeper in the corium, where there was a moderate edema of the tissues.

DISCUSSION

DR. R. L. HOWARD: In view of the fact that this patient has been working at the same occupation and with the same materials for some time without symptoms until the type of oil was changed, we are inclined to blame this condition on the new oil, or foreign substances contained therein. Because of the development of pigmentation on the parts exposed to intimate contact with oil, as well as to light, the symmetry of distribution and finally the anatomic location of the pigment, we believe this to be a case of Riehl's melanosis.

It may be recalled that Riehl, who described this syndrome, attributed it to the adulteration of vegetables with mineral oils. Probably certain aromatic bodies in the mineral oil, such as the derivatives of naphthalene, are ultimately responsible for the dyschromia.

Recently there have been reported in the literature several cases of hyperpigmentation of a type clinically similar to ours. It seems interesting to mention a few of them in connection with our case. Last August, Dr. Ormsby reported a case that occurred in a white man, aged 41, who had worked for two years with abrasive powders containing iron, nickel, chromic acid, etc. This man improved so much after receiving sodium thiosulphate intravenously (and a keratolytic ointment externally), that we were led to employ that treatment in our present case.

In September, 1930, Dr. Wile demonstrated a case with pigment in the exposed parts, in a white man, aged 33, who had worked exclusively with steel, oil and abrasive powders. Five months later, Dr. Wile reported that substitution of tartaric acid for chromic acid in the abrasives resulted in a diminution of the discoloration, and advanced the belief that the pigment was not due to the oil, but to some associated substance.

A little more than a year ago Dr. Finnerud and Dr. Oliver presented a case in a young Negress who polished silverware, the pigmentation appearing grossly in patches of lichen planus-like outline. Pigment was found in the papillary layers of the corium, as in our case. In December, 1930, Dr. Finnerud presented another case in a chemist who had worked for three months in a new place. Pigmentation had started on the face and eyelids, preceded by pruritus and scaling. Subsequently, it was found that the patient had sulphonated a large quantity of naphthalene. Numerous cutaneous tests, made with and without exposure to ultraviolet rays, demonstrated that certain aromatic bodies, notably naphthalene, were responsible. Pigment was found largely in the papillary and subpapillary layers of the corium.

In the light of what is known about conditions clinically resembling Riehl's melanosis, it would appear that they can be produced by dissimilar agents.

DR. R. E. BARNEY: Perhaps the pigmentation in this case is due to the patient's occupation, but the possible presence of internal malignant processes must always be considered. Cases have been shown in which pigment appeared in the skin at a time when the patient appeared healthy and in which symptoms of carcinoma or sarcoma subsequently developed.

DR. H. T. PHILLIPS: This patient stated that he wears a skull cap while at work, which becomes saturated with oil. Moreover, he frequently draws oil-soaked sleeves across his forehead to wipe away perspiration. The scalp is involved only where the hair does not protect the skin from the oil-soaked garment.

DR. H. J. PARKHURST: In this case the pigmentation may be an occupational condition, but I do not believe that it should necessarily be called Riehl's melanosis.

DR. H. N. COLE: I think that Dr. Howard has mentioned all of the cases recently described in the American literature. This condition was first described by Riehl and later by Oppenheim, both from Vienna. At first it was felt that the pigment might be produced by certain dietary deficiencies. I consider this case a typical example of Riehl's melanosis.

Book Reviews

TRANSACTIONS OF THE EIGHTH CONGRES INTERNATIONAL DE DERMATOLOGIE ET DE SYPHILIGRAPHIS COPENHAGEN, 1930. By DR. SVEND LOMHOLT. Price, 1 pound, 5 shillings. Pp. 1270. Copenhagen: Engelsen & Schroder.

This volume presents a complete report of the proceedings of this very successful congress — the opening exercises and other general meetings, the many papers and the discussion. It is an exceedingly valuable book. It is really better in some ways than hearing the papers and actual discussions, because here they can be read deliberately, and also because the volume contains numerous illustrations, which add to the value of the presentation. The format of the volume leaves nothing to be desired. It is handsomely printed, the illustrations are beautiful, and the binding is substantial. The Secretary-General, Dr. Svend Lomholt, is to be congratulated both on its excellence and on the promptness with which he has been able to publish it.

MAL DEL PINTO. By J. GONZALEZ URUEÑA. Pp. 8. Mexico: Aguilar Vera, 1931.

This pamphlet gives a general description of the disease known as mal del pinto, pinta, caraate or cute. The number of patients with pinto in Mexico amounts to 244,703, according to the 1930 census. The author states that the parasitic nature of the disease is not unanimously admitted today, the possibility of its being a general or systemic infection deserving consideration. It may be a spirochetic disease.

It is noteworthy that between 80 and 90 per cent of cases of pinta give a positive Wassermann reaction. Treatment with mercury, arsphenamine and bismuth seems to be efficacious. Some observers claim that bismuth is specific.

Directory of Dermatologic Societies *

NATIONAL DERMATOLOGIC SOCIETIES

American Medical Association, Scientific Assembly, Section on Dermatology and Syphilology

George Miller MacKee, Chairman, 200 W. 59th St., New York.
Francis E. Senear, Secretary, 55 E. Washington St., Chicago.
Place: New Orleans. Time: 1932.

American Dermatological Association

W. H. Mook, President, 3720 Washington Blvd., St. Louis.
W. H. Guy, Secretary, 7026 Jenkins Arcade, Pittsburgh.

British Association of Dermatology and Syphilology (Canadian Branch)

Philip Burnett, President, 2 Simpson St., Montreal.
L. P. Ereaux, Secretary, 1380 Sherbrooke West, Montreal.
Place: Toronto. Time: 1932.

SECTIONAL DERMATOLOGIC SOCIETIES

Baltimore and Washington Dermatological Society

Isaac R. Pels, President, 1010 St. Paul St., Baltimore.
H. Hanford Hopkins, Secretary, Johns Hopkins Hospital, Baltimore.

Iowa and Western Illinois Dermatological Association

J. C. Kessler, President, University Hospital, Iowa City.
J. W. Bailey, Secretary, 10th St. and Grand Ave., Des Moines, Iowa.

New England Dermatological Society

Arthur M. Greenwood, President, 416 Marlboro St., Boston.
William P. Boardman, Secretary, 388 Marlboro St., Boston.
Place: Boston. Time: April 13, 1932.

Southern Medical Association, Section on Dermatology

Clifton Brooks Willmott, Chairman, 608 S. 4th Ave., Louisville, Ky.
Emmet R. Hall, Secretary, 1001 Exchange Bldg., Memphis, Tenn.

STATE DERMATOLOGIC SOCIETIES

Louisiana Dermatological Society

R. A. Oriol, President, 921 Canal St., New Orleans.
M. T. Van Studdiford, Secretary-Treasurer, 150 Baronne St., New Orleans.

Medical Society of the State of New York, Section on Dermatology and Syphilology

Edward R. Maloney, Chairman, 853 7th Ave., New York.
George C. Andrews, Secretary, 115 E. 61st St., New York.

* Secretaries of dermatologic societies are requested to furnish the information necessary for the editor to make this list complete and to keep it up to date.

MEDICAL SOCIETY OF THE STATE OF PENNSYLVANIA
SECTION ON DERMATOLOGY

Sigmund S. Greenbaum, President, 1714 Pine St., Philadelphia.
Stanley Crawford, Secretary, 200, 9th St., Pittsburgh.

MICHIGAN STATE MEDICAL SOCIETY, SECTION ON DERMATOLOGY AND SYPHILOLOGY

Cyril K. Valade, Chairman, 1604 Eaton Tower, Detroit.
George H. Belote, Secretary, University Hospital, Ann Arbor.

MINNESOTA DERMATOLOGICAL SOCIETY

C. A. Boreen, President, 920 Medical Arts Bldg., Minneapolis.
D. D. Turnacliff, Secretary, Yeates Bldg., Minneapolis.

OKLAHOMA DERMATOLOGICAL ASSOCIATION

James Stevenson, President, 108 W. 6th St., Tulsa.
W. A. Showman, Secretary, 108 W. 6th St., Tulsa.

LOCAL DERMATOLOGIC SOCIETIES

ATLANTA DERMATOLOGICAL SOCIETY

Francis G. Jones, President, 384 Peachtree St., Atlanta, Ga.
Charles A. Wilkins, Secretary, Medical Arts Bldg., Atlanta, Ga.

BRONX DERMATOLOGICAL SOCIETY

Henry Silver, Chairman, 290 West End Ave., New York.
Theodore Rosenthal, Secretary-Treasurer, 115 W. 86th St., New York.

BROOKLYN DERMATOLOGICAL SOCIETY

Abraham Walzer, President, 217 Clifton St., Brooklyn.
A. M. Persky, Secretary, 1750 Ocean Pkwy., Brooklyn.

CHICAGO DERMATOLOGICAL SOCIETY

Henry E. Michelson, President, 80 S. 7th St., Minneapolis.
E. A. Oliver, Secretary, 55 E. Washington St., Chicago.

CINCINNATI DERMATOLOGICAL SOCIETY

H. Jerry Lavender, President, 716 Provident Bank Bldg., Cincinnati.
L. E. Valker, Secretary-Treasurer, 916 Provident Bank Bldg., Cincinnati.

CLEVELAND DERMATOLOGICAL SOCIETY

Howard J. Parkhurst, President, 316 Michigan St., Toledo.
Robert E. Barney, Secretary, 1021 Prospect Ave., Cleveland.

DETROIT DERMATOLOGICAL SOCIETY

Claud W. Behn, President, 1546 David Whitney Bldg., Detroit.
William G. Saunders, Secretary-Treasurer, 9203 Grand River Ave., Detroit.
Place: Cleveland. Time: Nov. 19, 1931.

LOS ANGELES DERMATOLOGICAL SOCIETY

Irving R. Bancroft, Chairman, 412 W. 6th St., Los Angeles.
Chris R. Halloran, Secretary, 1052 W. 6th St., Los Angeles.

Manhattan Dermatologic Society

George Miller MacKee, Chairman, 200 W. 59th St., New York.
Mihran B. Parounagian, Secretary, 126 E. 39th St., New York.

Montreal Dermatological Society

Philip Burnett, President, 2 Simpson St., Montreal.
Lemuel P. Ereaux, Secretary-Treasurer, 1390 Sherbrooke St., West, Montreal.

New York Academy of Medicine, Section of Dermatology and Syphilis

Joseph J. Eller, Chairman, 100 W. 59th St., New York.
Leo Spiegel, Secretary, 241 W. 100th St., New York.

New York Dermatological Society

John Frank Fraser, President, 100 W. 59th St., New York.
Edward R. Maloney, Secretary, 853 7th Ave., New York.

Philadelphia Dermatological Society

Carroll S. Wright, President, 1402 Spruce St., Philadelphia.
Jacques P. Guequierre, Secretary, 1930 Chestnut St., Philadelphia.

Pittsburgh Dermatological Society

J. H. Fiscus, Chairman, 121 N. Main St., Greensburg, Pa.
Claude B. Norris, Secretary, 244 Lincoln Ave., Youngstown, Ohio.
Place: Pittsburgh. Time: Spring, 1932.

St. Louis Dermatological Society

Richard S. Weiss, President, 3720 Washington Blvd., St. Louis.
M. F. Engman, Jr., Secretary-Treasurer, 3720 Washington Blvd., St. Louis.

San Francisco Dermatological Society

Howard Morrow, President, 384 Post St., San Francisco.
John M. Graves, Secretary, 909 Hyde St., San Francisco.

Index to Current Literature

DERMATOLOGY

A Clinical Study of Ascariasis. A. E. Keller, Horton Casparis and W. S. Leathers, J. A. M. A. **97**:302 (Aug. 1) 1931.

Actinotherapy at Tuberculosis Dispensary. G. Jessel, Lancet **1**:1182 (May 30) 1931.

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